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ABSTRACT

This practicum was designed to increase the integration of technology into the sixth-grade curriculum and to eliminate technology as a separate subject in an urban middle school setting. The subject of technology was integrated into the curriculum of the remaining academic subjects, instead of being added onto the curriculum. Site-based teacher training workshops were conducted. The classroom teachers were then better able to utilize the computer lab to make technology an integral part of their classroom activities. The teachers incorporated technology into their subject areas for student assignments and projects. Appended are teacher and student questionnaires that were used to evaluate before and after performance of both students and teachers relative to the incorporation of technology. Analysis of the questionnaires and performance-based assessment rubrics indicated that there was a substantial increase in the use of computer technology by both students and teachers. There was also an increase in the integration of technology into their subject areas by the teachers. (Contains 35 references and 19 appendices.) (Author/MES)

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Improving the Integration of Technology into the Sixth-Grade Curriculum in a Middle School

by
Linda Fine
Cluster 90

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A Practicum I Report Presented to
the Ed.D. Program in Child and Youth Studies
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

Nova Southeastern University
1999

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PRACTICUM APPROVAL PAGE

This practicum took place as described.

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This practicum report was submitted by Linda Fine under the direction of the adviser listed below. It was submitted to the Ed.D. Program in Child and Youth Studies and approved in partial fulfillment of the degree of Doctor of Education at Nova Southeastern University.

Approved

May 8, 1999

Date of Final Approval of Report

Mitzi Burden

Dr. Mitzi Burden, Advisor

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I would like to give special thanks to my family. My loving and supportive husband, Benjamin was always there to support and encourage me. Special thanks to my children Carolyn and David for being so understanding when mom was working in her office.

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Abstract

Improving the Integration of Technology into the Sixth-Grade Curriculum in a Middle School. Linda Fine, 1999: Practicum Report, Nova Southeastern University, Ed.D. Programs in Child and Youth Studies. Collaboration/ Computer Technology/ Computer Uses in Education/ Educational Leadership/ Educational Technology/ Inservice Training/ Integration of Technology into Curriculum/ Intermediate Grades/ Internet/ Middle School Education/ Staff Development/ Teacher Attitudes.

This practicum was designed to increase the integration of technology into the sixth-grade curriculum and to eliminate technology as a separate subject in an urban middle school setting. The subject of technology was integrated into the curriculum of the remaining academic subjects, instead of being added onto the curriculum.

The writer and the media specialist conducted site-based teacher training workshops. The classroom teachers were then better able to utilize the computer lab to make technology an integral part of their classroom activities. The teachers incorporated technology into their subject areas for student assignments and projects. Appended are teacher and student questionnaires developed by the writer that were used to evaluate before and after performance of both students and teachers relative to the incorporation of technology.

Analysis of the questionnaires and performance based assessment rubrics indicated that there was a substantial increase in the use of computer technology by both students and teachers. There was also an increase in the integration of technology into their subject areas by the teachers.

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Chapter I: Introduction

Description of Community

The setting for this practicum is an urban community in the northeast. The 1995 estimated population of the city is 107, 199. It covers an area of 39.9 square miles located on Long Island Sound. The city is about an hour from a major metropolitan city. In 1990, the U.S. Bureau of Congress reported that the capita income was $27,092. It is a center for major international corporate headquarters, yet it maintains a suburban character. The economy of the community has been steadily improving in recent years.

The school district accommodates seventeen schools. There are eleven elementary schools, four middle schools, and two high schools. The elementary schools house kindergarten through grade five. Four of these schools are magnet schools where students enroll through a lottery system. The middle schools house grades six through eight and one of them is a magnet middle school. The high schools house grades nine through twelve. Presently there is no magnet high school. There is a committee to present a proposal for a new magnet high school. The magnet schools help in the process of equal integration of the student population in the community.

The elementary schools average 52.7% minority, the middle schools average 55.4% minority, and the high schools average 57.2% minority. The enrollment of the white students drops as the grade level rises. Almost 5% of the white students are enrolled in private school by grade nine. Almost 20% of the student body are designated as Special Education students while 4% are in the Extraordinary Learner Program. The school district has 14, 500 students with 87% of the graduates pursuing higher education.

The student body represents an extremely diverse population. This diversity is in race, ethnic background, national origin, and socioeconomic status.

Writer's Work Setting

The writer's work setting is a public magnet middle school. There are 54 certified staff, comprised of teachers, counselors, and instructional support personnel, along with three administrators. They all create a proper learning environment for the 540 students within the school. The make-up of the school population parallels that of the district. The average class size is 20 students. The class size is slightly lower than the district. Since the students are heterogeneously grouped in their classes, all the magnet schools in the community have a lower class size.

The school opened in 1991 and was partially funded by two major local corporations. The school has a science, math, and technology focus. The mission statement is "The school is committed to a program that understands and accommodates for the unique physical, intellectual, social and emotional needs of emerging adolescents accomplished in a manner that insures strong personal self concept development." It supports the mission statement of the district: "to provide a superior education for all students."

The school program is intended to insure success of all students in an atmosphere that balances academic and personal development. A core, interdisciplinary curriculum program has been designed to enable students to acquire competence in academic, social, and personal skills. It emphasizes an appreciation for inquiry, reflection, reasoning, and the capability for responsible citizenship in a democratic and pluralistic society. The

curriculum is broad and varied to include exploratory experiences. It helps to provide the students with the opportunity to pursue their particular areas of interest.

The school is connected to the major reform network, The Coalition of Essential Schools, which is noted for innovative and successful practices in education. The school is also based on the recommendations from the report Turning Points. This report was developed to assist in the transformation of middle schools by the Task Force on Education of Young Adolescence of the Carnegie Council on Adolescent Development. The Task Force calls for schools that: "Create small communities for learning", "teach a core academic program", "ensure success for all students", "empower teachers and administrators to make decisions about the experiences of middle grade students", "staff middle grade schools with teachers who are expert at teaching young adolescents", "reengage families in the education of young adolescents" and "connect schools with communities" (p. 9). These ideas are important and constitute a major part of our school culture.

The sixth grade, seventh grade, and eighth grade are each divided into two distinct teams. Each team is comprised of a social studies, language arts, math, and science teacher. In addition, the sixth-grade has a reading teacher. Each team services approximately 90 students. The students are grouped heterogeneously and there is an inclusion program for students who need special services. The teachers work together on teams with a common planning time and flexible scheduling. There is a technology teacher for each grade level. In addition, there is technology teacher to teach keyboarding classes to the sixth-grade students, train staff, and maintain the network. All four of the technology teachers have their own computer labs. Furthermore, there are two

computer labs for the seventh grade language arts classrooms. One lab has 10 computers and the other lab has 20 computers.

Writer's Role

The writer serves as the sixth-grade technology teacher of the school responsible for servicing 180 students and teaming with the sixth-grade teachers. During 1986-1990, the writer was responsible for training all the elementary teachers in the school system in computing and the use of computers. The writer taught several workshops for elementary teachers in the school district on integrating technology into the classroom. The writer has also worked as an adjunct professor at a local university, which gives a degree in education, training student teachers to integrate technology into their lessons. In addition, the writer served as the chairperson for the 1996 District Technology Committee for Staff Development and Integration of Technology into the Curriculum.

Chapter II: Study of the Problem

Problem Statement

The problem that currently exists is that the sixth-grade teachers are not utilizing appropriate computer software application programs relevant to the curriculum.

Problem Description

The teachers rely on the writer, as the technology teacher, to integrate the technology into the curriculum. Since the writer is the technology teacher for the sixth-grade, the other teachers have not incorporated technology into their own subject areas. The teachers are unfamiliar with the computer software programs available in the school. Furthermore, they have not been trained technologically in their subject areas and tend to adhere to the textbooks and manipulatives. They have written their own curriculum, which is based on the district guidelines. They have not used computer software application programs in their instructional delivery of this curriculum.

At the team-meetings, the teachers do not discuss curriculum with the technology teacher or the media specialist on a regular basis. The team-meetings do not have a set agenda where curriculum is mentioned on one day, students' progress considered on another day and scheduling done on a different day. The writer and the media specialist are unable to attend both team-meetings, on the same day, since they are scheduled at the same time. Logbooks of team-meetings are not kept on a regular basis. Therefore, it is difficult to find out what was discussed the week before in the various areas.

Student activities and projects are assigned by the teachers without a technology component. The students are not required to use word processors, electronic databases,

or presentation software to do research reports and presentations. The teachers do not assign a specific Web site to use for research information. The teachers are not aware of the possibilities of the Internet. They are also not aware that in the future, the state will be mandating specific technology skills for all certified teachers and administrators. The teachers do not use the additional computer lab equipped with 20 computers with Windows 95 and access to the Internet. The eight-grade students use this lab most of the day, but there are times when it is available for other students and teachers.

Problem Documentation

There are five pieces of evidence documenting the problem in the writer's work setting. (a) the lack of technology integration was documented by a needs assessment survey questionnaire conducted with sixth-grade teachers; (b) a needs assessment survey questionnaire conducted with sixth-grade students; (c) examination of the school schedule indicating that the computer labs were assigned to the technology teachers for regularly scheduled computer classes; (d) teachers not requiring the students to use technology as part of their subject; and (e) the lack of curriculum discussion with the technology teachers and the media specialist.

A needs assessment survey questionnaire was conducted with the sixth-grade teachers. The results indicated that 8 of the 10 teachers do not add a technology component to the lessons or units that the students are working on. The source for the information was a 30-minute needs assessment survey of the teachers administered by the

writer. The data collection method used was a questionnaire with a Likert Scale (see Appendix A).

The results of the student questionnaire given to 180 students, indicated that 75% of the students do not use computer application programs to complete assignments and projects. The source of the information was a questionnaire composed of 13 questions administered by the writer. The data collection method was a questionnaire with a Likert Scale (see Appendix B).

The third piece of evidence was the school schedule, which indicated that the computer labs were assigned to the technology teachers in the school for regularly scheduled technology and keyboarding classes. During open time, the sixth-grade teachers never used the rooms. The source for the information was the school schedule, observations, and interviews. The school schedule showed that the three technology teachers in the school occupied three computer labs. The additional computer lab equipped with 20 computers with Windows 95 and access to the Internet was not used by the sixth-grade students or teachers. The writer interviewed five teachers and an administrator who all admitted that the sixth-grade students and teachers did not use the computer lab (see Appendix C).

The fourth piece of evidence was that 0 of 5 teachers required their students to use technology as part of their subject. The writer interviewed five teachers and an administrator separately in the principal's office. All the teachers verified that they did "not feel comfortable with a class of students in a computer lab." One teacher said, "I'd rather stay in my own classroom. It's much easier." The administrator admitted that she did not know why the teachers were not using the lab. She said "I always expected the

language arts teachers to bring their classes to the lab for the students to do word processing. I also expected the math teachers to have the students do databases and spreadsheets. It's part of the curriculum."

The fifth piece of evidence was that only 2 of the 10 teachers discuss curriculum with the technology teacher and media specialist on a weekly basis. The source for the information was entries from the team-meeting minutes. They usually talked about curriculum and technology integration before the actual team meeting started. Once all the members of the team were present, they talked about other concerns not related to technology. It was obvious that all the team members did not consider it an important item. The same members were always late to the meetings and they were the ones not discussing the curriculum with the technology teacher and media specialist.

Causative Analysis

There are four possible causes of the problem. The teachers are not properly trained to use the technology equipment. Through the teacher questionnaire, the writer was able to determine that the workshops available to the teachers were not about appropriate computer software application programs relevant to the sixth-grade curriculum. The writer discovered that the teacher workshops were given at times that were not convenient to the teachers and on equipment that was different from what they had access to in the school. The result of the writer's investigation revealed that the teachers and the administration did not see teacher training as a priority.

The teachers have negative attitudes toward the technology. The writer was able to determine that the teachers did not believe that using technology would be useful to the students. The results of the writer's investigation revealed that the teachers were afraid of using the technology. This has been due to fear of the unknown, lack of time to get comfortable with the equipment, and not being familiar with the various software applications. Furthermore, it is frightening to several teachers to have some of their students more technology literate than they are.

The technology teacher and media specialist are not involved in the curricular selection and planning of student activities related to the curriculum. Through the team-meeting minutes, the writer was able to determine that the teachers did not discuss curriculum with the technology teacher or media specialist on a weekly basis. Through interviews, the writer was further able to determine that the teachers did not realize that the technology teacher and media specialist were not present at the meetings when curriculum was discussed. The results of the writer's investigation revealed that the teachers were unaware that it would be helpful to have the technology teacher and the media specialist present on a weekly basis for discussions on curriculum.

There is insufficient access to the computer lab. The result of the writer's inquiry pointed out that having scheduled computer classes with the technology teacher in the computer lab did not allow the teachers time to use the lab for their own classes. The teachers did not use the other two computer labs since they were assigned to the seventh grade language arts teachers. The seventh grade teachers had all their classes scheduled in these computer lab rooms. Therefore, these rooms were not available to the sixth-grade teachers when they had their classes.

Relationship of the Problem to the Literature

The topic areas researched for the literature review were integrating the technology into the curriculum, technology and education, integrating the computer into the curriculum, and teacher training. As a general outline, many authors pointed out the importance of teacher training, giving computers to teachers before students, teacher attitudes, and considering technology as a catalyst for change.

For years, teacher training programs have been a regular characteristic of computers in education. These programs have been one-day workshops, which focused on technical proficiency. However, the educational philosophy has changed relative to the integration of the computer into the classroom. This change has involved using the computer as a tool, similar to the blackboard as a tool. Teacher training, with on going support service, is needed for the classroom teachers to integrate computers into the classroom. Schools need to provide an active technical development service that is implemented on a continuous basis (Ham, 1997).

Pre-service teacher education programs in the colleges need to train the teachers to integrate the technology into the curriculum. Since traditional methods have been inadequate, this needs to be the starting point of the whole training process of integrating computers into the classroom. The programs need to go beyond "booting up" a computer to guiding teachers to think about their curriculum and how to incorporate technology around it (Kraus, Hoffman, Oughton, & Rosenbluth, 1994; United States National Commission on Excellence in Education, 1983; Willis, 1997). The pre-service teacher

education programs need to change the way they teach student teachers. It is important to teach with computers rather than teach about computers (Willis, 1997). The present college programs are not allowing the future teachers the opportunities to design and deliver instructional lessons using technology. They are not allowing the necessary time for student teachers to progress through the various stages necessary to become competent at writing lesson plans integrating the technology into the curriculum (Kraus, Hoffman, Oughton, & Rosenbluth, 1994).

The computers should be given to the teachers first, along with the proper training. They should be used as a tool to manage the progress of the students instead of giving the computers to the students. Teachers need to be trained before the technology is installed in the classroom. The technology can support the ways the teacher manages the classroom. The teacher will gain a comfort level to be able to use the equipment with the students. The educational system needs to be more like a business in not sending around paper announcements and using e-mail instead. This can only be accomplished by giving all teachers a computer on their desk and a phone line for on-line access (Dede, as cited in O'Neil, 1995).

Students need to be involved as key participants in training teachers. There is limited support for teachers to learn about unfamiliar technologies and not enough time to practice the new skills. When students are used as an integral part of the technology training process, the teachers will realize the benefits of shifting roles and becoming more of a facilitator. This will lead to long term changes in teacher practices (Gilmore, 1995; Kearsley & Lynch, 1992).

A combination of computer training and positive attitudes does not ensure that the teachers will integrate the computer into the curriculum (Dickey & Kherlopian, 1987; Schug, 1988). These researchers discovered that the combination of available resources, positive attitudes, and formal training does not guarantee that it will lead to high levels of integration of software into the curriculum.

Computer technology is resisted in order to maintain the status quo in the classroom and resist change. In order for technology to be truly integrated into the classroom and used productively with the students, there needs to be a change in the teaching style (Cuban, 1986).

Interviews with other technology teachers and consultants revealed that teachers are not willing to use the appropriate computer software application programs relevant to the curriculum. The classroom teachers are overwhelmed with all the new technology available. They do not have the time to learn how to use the software and to determine when would be the opportune time to incorporate it into the curriculum (J. Forde, personal communication, June 10, 1998). The classroom teachers do not have access to computer labs when they need to use equipment for the students. "If labs are available in a school, teachers need to schedule their classes well in advance. Many times, this does not coincide with their lesson" (S. Hackbarth, personal communication, May 24, 1998).

The literature described as possible causes of the problem that technology is taught as a separate subject, teachers have insufficient training in using equipment and software, teachers are afraid of the computers, teachers lack access to the proper equipment, and technology is not considered a catalyst for change.

Technology should not be a separate subject in the curriculum. Too much focus is on the technology and not enough on the curricular application of the technology. The organization of the classroom is wrong for the integration of technology. Educators are recognizing that computer teachers should not teach computer skills separately, in isolation. Computer literacy courses in middle schools need to be replaced with using the computer as a tool (Brazeli, 1996; Eisenberg & Johnson, 1996; Ringstaff & Yocam, 1994).

Teachers need to be trained in using the proper equipment and software. They need to become comfortable enough with all the different types of hardware and software application programs. Then they will be able to find creative ways to use the technology with the students as part of the curriculum (Bulkeley, 1988; Milone, 1998; Parks & Pisapia, 1994; Salpeter, 1998).

Teachers are afraid of using the computers and the new technology. They have a fear of making mistakes, especially in front of the students. They need to re-examine their own philosophies, goals, and self-reflection to achieve success in the integration of computers into the curriculum. Teachers need to realize that it is okay to make mistakes too (Harris & Bruce, 1997).

The role of the teacher needs to change to a coach and a facilitator instead of a lecturer. Teachers need to change their traditional method of teaching and release more control to the students. The teacher cannot be the sole authority of knowledge with the presence of technology in the classroom (David, 1991; Dwyer, Ringstaff, & Sandholtz, 1990; Kohl, as cited in Bradley, 1983; Papert, 1980; Thornburg, 1989). According to Thornburg (1989) acquiring the technology is the easy part while "helping educators

make the transition to a new kind of teaching – something that requires tremendous dedication on the part of the teacher as well as the willingness to take risks and learn new skills" (p. 94) is the more difficult part.

The media specialist needs to be involved in the curricular selection and the planning of the student activities. These specialists are vital for a successful integration of the technology into the classroom curriculum. They need to be included in the curriculum planning of classroom lessons (Day & Scholl, 1987). There also needs to be sufficient access to the computer lab in a school building. All classroom teachers need to be able to utilize the computer labs when it is appropriate in the lesson. However, it still does not guarantee successful integration of technology into the curriculum (Dickey & Kherlopian, 1987).

The scope of the review was limited to five issues: technology as a separate subject in the curriculum, teacher training, teacher attitudes, access to the equipment, and technology as a change catalyst. The writer felt that they were the key ingredients that were perpetuating the problem of the integration of the technology into the sixth-grade curriculum. There was additional literature that mentioned technology planning as a problem, time constraints, granting sabbaticals, and funding for new equipment. The writer felt that they were not within the resources of this practicum. In addition, because of the changing nature of technology, the articles were limited to those published within the past twenty years. Even twenty years ago, (Papert, 1980), there was literature that discussed the problem of integrating software into the school curriculum. The writer believed that it was important to go back further than ten years because the problem had

existed from the day that Apple Computer Company gave a computer to every school in California in 1979.

Chapter III: Anticipated Outcomes and Evaluation Instruments

Goals and Expectations

The technology will be integrated into the sixth-grade curriculum. Students will use the appropriate computer software application programs as a tool to complete assignments and projects from their academic classroom teachers. At the same time, these teachers will use the technology for their professional growth.

Expected Outcomes

The teacher and student questionnaires, the interviews, examination of the school schedule, and the lack of curriculum discussion with the technology teacher and media specialist indicate that the sixth-grade teachers are not utilizing appropriate computer software application programs relevant to the curriculum. This practicum will be executed with 10 sixth-grade teachers and 180 sixth-grade students. There are five expected outcomes that the writer would like to achieve.

1. By the end of the implementation period, there will be an increase in the number of sixth-grade teachers utilizing e-mail and search engines on the Internet for professional growth. A pre and post teacher performance based assessment will measure this outcome. Success will be demonstrated when at least 5 of the

10 teachers utilize e-mail and search engines on the Internet for professional growth.

2. By the end of the implementation period, there will be an increase in the percentage of students utilizing word processors, electronic databases, and presentation software to do research reports and presentations. A pre and post student performance based assessment and an assignment checklist will measure the outcome. Success will be demonstrated when at least 50% of the students utilize word processors, electronic databases, and presentation software for research reports and a presentation.

3. By the end of the implementation period, there will be an increase in the number of teachers who not just have access to a computer lab, but who utilize the lab for assignments and projects. A schedule sheet and record keeping system of time spent using the technology will measure this outcome. Success will be demonstrated when at least 5 of the 10 teachers will not only have access to a computer lab but also utilize the lab for students to do assignments and a project.

4. By the end of the implementation period, there will be an increase in the number of teachers requiring the use of appropriate computer software application programs to use during their classroom activities. The post teacher interviews and lesson plans will measure this outcome. Success will be demonstrated when at least 5 of the 10 teachers require the use of appropriate computer software application programs to use during their classroom activities.

5. By the end of the implementation period, there will be an increase in the

number of teachers involved in the curricular selection and planning of student activities with the technology teacher and the media specialist on a weekly basis. The team-meeting minutes and journal entries will measure the outcome. Success will be demonstrated when at least 5 of the 10 teachers are involved in the curricular selection and planning of the student activities with the technology teacher and the media specialist 6 out of 12 weekly meetings.

Measurement of Outcomes

Following the implementation period, the writer will carry out an evaluation to determine whether the outcomes have been achieved. Each of the five outcomes has its own measurement device.

1. A pre and post teacher performance based assessment will be compared in order to measure the increase in the number of sixth-grade teachers utilizing e-mail and search engines on the Internet for professional growth. The writer will observe the teacher individually on the computer using the Internet. The writer will orally give directions to the teacher and use a rubric for the evaluation process (see Appendix D). The teacher will also retake the written teacher questionnaire on telecommunications that was administered during the needs assessment (see Appendix A).

2. A pre and post student performance based assessment will be compared in order to measure the increase in the percentage of students utilizing word processors, electronic databases, and presentation software to do research reports

and presentations. The writer will administer a pre and post written student word processing assessment, a written electronic database assessment, and a written presentation software assessment (see Appendix E). The student will be required to do a report as a word processing document. The report will be evaluated by the writer as well as independently by the student (see Appendix F). This report will contain at least one electronic database in the reference. The student will be required to do a final presentation utilizing presentation software. This will be evaluated by using a rubric (see Appendix G).

3. A written schedule sheet with the names and times of the teachers and students will be used to measure the increase in the number of teachers who not just have access to a computer lab, but who utilize the lab for assignments and projects. The sheet will be posted in the lab on a daily basis so the teacher can record the lab usage. The writer will inspect all the sheets.

4. Pre and post teacher interviews will be compared and analyzed to measure the increase in the number of teachers requiring the use of appropriate computer software application programs (see Appendix C). The language arts and reading teachers will use word processing software, the social studies teachers will use computer simulation software applications, the science teachers will use the computer software Rediscover Science, and the math teachers will use Logowriter, databases, or spreadsheets.

5. The team-meeting minutes and journal entries will measure the increase in the number of teachers involved in the curricular selection and planning of the student activities with the technology teacher and the media specialist on a weekly

basis. The writer will inspect all the minutes and entries.

Chapter IV: Solution Strategy

Discussion and Evaluation of Solution

The problem that currently existed was that the sixth-grade teachers were not utilizing appropriate computer software application programs relevant to the curriculum. The teachers relied on the writer, as the technology teacher, to integrate the technology into the curriculum. Since the writer was the technology teacher for the sixth grade, the other teachers had not incorporated technology into their subject areas. The teachers were unfamiliar with the computer software programs available in the school.

Several possible solutions discovered from a review of the literature were applied to this writer's work setting. The topic areas that were researched focused on teacher training, teacher attitudes, and technology as a change catalyst. Four sources all advocated that teacher training was necessary in order for teachers to utilize appropriate computer software application programs.

One-on-one training done on site (Fahy, 1985) had a positive result in increasing integration of the computer in the classroom setting. The study confirmed that there was an increase in positive affect on the teacher attitudes in using technology. Three other studies revealed that teachers who are able to integrate the technology into the curriculum need to team-teach and mentor the teachers who are ready to incorporate the technology into the classroom (Brown & Henscheid, 1997; Caverly, Peterson, & Mandeville, 1997; November, as cited in Bruder, 1990). This writer saw merit in using these ideas of teacher training with classroom teachers and computer software application programs.

This would work well in the writer's work setting. The administration encouraged team teaching with the common planning time available through the flexible block scheduling.

The classroom teachers in grades 5 to 9 need access to computer labs (Dickey & Kherlopian, 1987). Use of equipment is an essential ingredient that needs to be available to the teachers. However, they pointed out that just because the equipment is available, it does not mean that the teachers will use it as a tool in the integration process. The writer saw that the process of the integration of the software application programs was an important factor to consider in the solution. Giving the sixth-grade teachers access to the computer lab would work well since there would not be any scheduled technology computer classes in the lab. The classroom teachers would be able to bring their classes into the lab and utilize the available software application programs. The writer would be able to team teach with the individual sixth-grade teachers and suggest the necessary software for the curriculum.

The teachers need to work collaboratively, along with the technology teacher, media specialist, and the students (Fahy, 1985; Day & Scholl, 1987). The media specialist can play a key role in encouraging positive attitudes for the integration of the technology into the curriculum. The writer planned to incorporate the knowledge of the media specialist in this particular area to generate ideas on integrating technology into the curriculum. At the writer's work setting, there was scheduled time during the teams' common planning time. As a technology teacher, the writer also planned to utilize the skills and comfort level that the students possess in using computer software application programs.

Description of Selected Solution

After evaluating the possible solutions found in the literature, the writer decided to use a fusion of methods. These techniques included as part of the solution the ideas of teacher training, the involvement of the technology teacher and media specialist in planning curricular activities, and the elimination of technology as a separate subject in the curriculum. The classroom teachers needed to learn to incorporate technology into their classroom activities.

The teachers would be trained properly to utilize appropriate computer software application programs relevant to the curriculum (Fahy, 1985; Brown & Henscheid, 1997). The teachers were not properly trained to use the technology equipment. This was evident through the teacher questionnaire. The administration had expected that the classroom teachers would come to the technology lab when they had prep period scheduled.

The writer wanted the teachers to learn along side the students to use the technology and software application programs. The teachers would not only observe the students utilizing the technology but would be required to utilize the appropriate software application programs relevant to their particular subject. For example, the math teacher might be learning about Logowriter, databases, or spreadsheets while the language arts teacher would be improving his or her word processing skills. The teachers would be improving their own computer skills and utilizing the technology for their professional growth. They would witness the positive accomplishments of the students doing their

assignments and projects first-hand. This should help to change their attitude toward technology in a positive fashion.

The writer would make use of the idea of the technology teacher and the media specialist being involved in the curricular selection and planning of the students' activities related to the curriculum (Day & Scholl, 1987). As the team-meeting minutes suggested, the technology teacher and the media specialist were not involved in the curricular selection and planning of students' activities related to the sixth-grade curriculum.

The writer and the media specialist would work cooperatively to insure that they were included in one team-meeting a week with each sixth-grade team. The teams meet separately daily at a set time during the school day. This is due to the block scheduling in the school building. With the guidance of the technology teacher and the media specialist, this common planning time is an ideal situation to have the teams discuss appropriate software application programs for the curriculum. The writer would encourage the teachers to seek the media specialist for the latest technology journals and magazines available in the media center.

There would be sufficient access to the computer lab (Dickey & Kherlopian, 1987). The teacher questionnaire revealed that since there were scheduled computer classes with a technology teacher, the classroom teachers had insufficient access to the computer lab. The writer would eliminate technology as a separate subject in the curriculum (Ringstaff & Yocam, 1994). The current methods of using the computer need to focus on learning how to integrate the computers into the curriculum and not on learning about the computers. Separate middle school technology computer classes tend

to stress technology as a separate subject instead of using the technology as a tool, like the chalkboard or pen, to complete classroom activities.

The writer proposed that the teacher training, the involvement of the technology teacher and media specialist in curricular section and planning of student activities, and the sufficient access to the computer lab would result in the five projected outcomes. The sixth-grade teachers would be able to:

1. Utilize the e-mail and search engines on the Internet for professional growth.
2. Have access to a computer lab and utilize the technology for classroom assignments and projects.
3. Require the use of appropriate computer software application programs to use during their classroom activities.
4. Plan student activities and curricular selection with the technology teacher and the media specialist.

The sixth-grade students would be able to:

1. Use word processors, electronic databases, and presentation software to do research reports and presentations.

Report of Action Taken

The writer implemented the practicum during a 12-week period. The original planned calendar of events was modified. Due to unexpected administrative tasks, the sixth-grade teachers were not able to meet with the technology teacher and media

specialist once a week for teacher training. Therefore, instead of 12 teacher training sessions on only using the Internet, there were 7 training sessions combining the use of the Internet and Powerpoint. The original order of the teachers using the computer lab with the technology teacher was also modified due to changes in the curriculum. As a consequence, it was necessary to change both the original schedule and the computer software application programs. In this manner, the technology could be used as a tool in the curriculum. The writer still maintained working with a 3-week schedule for each team so that there would be continuity for both the students and the teachers.

Two days prior to the implementation of the practicum, there were two unplanned events. The writer along with two sixth-grade teachers, one from each team, attended the annual state computer conference. The theme of the conference was integrating technology into the curriculum. This conference served as an excellent kickoff for the implementation of this practicum. The other unexpected event was a directive that came from the central office. The principal was to appoint two Tech Coaches. They were to be classroom teachers who would be able to work with other teachers using computers. The administration appointed the two teachers who had attended the conference with the writer to serve as the building Tech Coaches. They were a science and a social studies teacher, each from different teams.

The day after the state conference, the Tech Coaches and the writer attended a training session on the Internet and Hyperstudio with other teachers from a neighboring town. The Tech Coaches were able to speak to other teachers who had already used the Internet and Hyperstudio with their students. It was an opportunity to see what other

teachers in their curriculum areas were doing with the computer. The training was a total hands-on session using the Internet and Hyperstudio.

The writer was able to work individually with these two teachers at this session. The teachers were very excited at what they saw and conveyed that excitement to the other teachers on their team. They were extremely motivated by seeing the projects that were produced by students using Hyperstudio. The writer explained that Hyperstudio was not available on our computers but that Powerpoint was available. Powerpoint would allow the students to do presentations. All the teachers were interested in learning how to use Powerpoint. These two unexpected events had a positive affect on the motivation of the classroom teachers. They were all enthusiastic about working in the computer lab. The following summations take into account these changes and have been written in such a way as to allow similar implementation and replication by the reader.

During the first week of implementation, the principal came to a joint sixth-grade team-meeting and told the teachers that she was committed to technology not being a separate subject. She expected the teachers to be in the computer lab along with the writer during the next 12-week period. She also said that she would try to attend some of the teacher training sessions during our team-meetings. The team decided on using Mondays for the training sessions. The focus for the training would be using the Internet and Powerpoint. The teams also decided on the using a certain day for curricular selection and planning of student activities with the technology teacher and the media specialist on a weekly basis. One team decided on Tuesdays and the other team on Wednesdays. This way both the technology and media specialist could attend their individual team-meetings.

During lunchtime, the writer and the media specialist met with the language arts and math teacher from the same team. They were working on a joint project on nutrition. The students were to produce a research report for the language arts teacher and a graph of their data for the math teacher. The language arts teacher suggested that the students use a word processing program. The writer suggested that the students could use a spreadsheet for the graphs. The writer found a curriculum-based worksheet from Microsoft designed to integrate computer applications into the classroom (see Appendix H). Although, the writer did not have Microsoft Excel on the computers, this was still used as a model in designing the spreadsheets for the students. The writer used the available software application program of Microsoft 2.0 for both the word processing and spreadsheet. The teachers planned on a week for the word processing and a week for the spreadsheet.

The writer worked with the language arts teacher first. By this time, the students had already researched the topic in the media center with the help of the media specialist. They already had note cards on their specific topic related to nutrition. The language arts teacher wanted the students to type their notes into outline form, use the outline to make a table of contents for their report, and then type their report with references.

The language arts teacher outlined how she expected the students to complete the activities while the writer used the computer with a large projection screen to model the way it would look on the computer. The students produced an outline on the computer and at the same time became comfortable using the Tab key, altering the font size and style, using the spell checker and thesaurus, and centering the title. They also learned to convert the outline into a table of contents by making some minor changes while utilizing

the skill of copying and pasting. They learned the computer skill of saving the document as two separate files and saving to a disk as opposed to the hard drive. Finally, they learned how to type a research paper with a correct reference list.

The language arts teacher and the writer were available to help the students and provide individual attention when necessary. During, 5 of the 7 classes, the special education teacher was also in the room assisting the students. She was actually learning the computer material along with the students. These activities actually took more than the five days that were originally planned. It actually took seven days, with each period forty-five minutes, for the students to complete all the word processing activities. To evaluate the effectiveness of the sessions, the writer used the assessment rubric for the student word processing report (See Appendix F).

During this time period, the language arts teacher also wanted to learn to use a database to regroup the sixth-grade students. Since the students were grouped at times heterogeneously and at times homogeneously for specific skills in reading and math, their groups changed constantly. In the past, the writer did the grouping of the students for this team. This was a perfect opportunity for the writer to show someone on this team how to use a database so that the team could handle the regrouping. She was able to regroup the students on the team and wanted to show the other teachers on the team how it was done. Together, the writer and the language arts teacher spent two team-meetings working with the other teachers on using a database.

After completing seven days of work with the language arts teacher, the writer worked with the math teacher. The math teacher was not comfortable using a spreadsheet, so the writer's goal was to help her to become more proficient in this

particular skill. The students were also not familiar with spreadsheets. The writer followed the suggestions in the curriculum-based worksheet from Microsoft designed to integrate computer applications into the classroom. The students used as data their individual diet records that they had collected for homework (see Appendix H).

On the computer, the writer modeled how to enter the data into a table and then convert the data into different charts and graphs. At the same time that the students were learning to use spreadsheets, the math teacher was becoming more comfortable utilizing this software application program. The students and math teacher together learned how to enter data into specific cells, enter formulas into a cell, to calculate the average, and become more proficient in clicking and dragging the mouse. The students needed only four days, not five days, to complete this activity.

The only problem that occurred in this phase was due to the slowness of the computer network in printing their graphs. The writer did not want to take up almost a whole class period of forty-five minutes in order for the students to print. Therefore, it was necessary for the writer to print many of the graphs after school and then give the printouts to the students the following day. The students were somewhat disappointed in seeing the printout of their graphs since they were only black and white. Many of the students had computers at home with color printers. They expected that their graphs would be in color.

This became a perfect opportunity for the writer to show the math and language arts teacher how to use the four computers that they had upstairs in their own room. These computers were equipped with Microsoft 3.0 and a color printer. The math and language arts teacher were able to have the students convert their spreadsheets into the

newer version and get a color printout of their graphs. The teachers did not realize that the printer was a color printer since they had only used these computers for word processing. This was an unplanned event that further developed as another good opportunity to help these two teachers with their computer skills.

The first teacher training session on using the Internet occurred during this time. The principal was invited but was unable to attend due to a meeting. The writer had the media specialist involved in the session on using e-mail. She planned to be at all the training sessions to help assist the teachers. The writer and the media specialist had the teachers register to get free e-mail addresses from Hotmail. This is a company that issues free e-mail addresses (See Appendix I). At present, our school district has not given administrators or teachers their own e-mail addresses.

The teachers were asked to e-mail the writer the answers to the following questions. What do you want to learn in using e-mail and the Internet? What do you want to learn while in the computer lab with the students? What do you want students to do in the lab during that week? These questions were used so that the writer could assess the individual needs of all the teachers and their students. It was explained that the writer would e-mail them with a file attached so that at the next session they could learn how to download a file. The teachers also had time to set up an e-mail address book. They listed individual addresses and made a group for each sixth-grade team. They were told to practice using the e-mail during the subsequent week.

The following week, the students presented their reports and graphs on nutrition while the writer continued working with the social studies teacher in the computer lab. During two lunch periods, the writer, the media specialist, and the social studies teacher

devised a plan to utilize the available technology so that the students could research both Ancient Egypt and Modern Egypt. The final product was to be a newspaper done on the computer.

This teacher was already familiar with one CD-ROM disk titled Ancient Lands by Microsoft. Last year, the media specialist had introduced this piece of software to the sixth-grade social studies teachers and this teacher had already sent students to the media center to use it. This teacher found the CD useful and was willing to learn about other forms of technology for the students to use in gathering their information. He was also willing to learn how to create a newspaper on the computer. He was limited in his word processing skills and thought that this would be helpful to him in the future.

The students learned how to use PC Globe, Knowledge Adventure, Ancient Lands, and How Would You Survive? The social studies teacher designed worksheets for the programs (See Appendix J). During the next two days, they were placed into groups of four and rotated through the different software application programs. The social studies teacher helped the students at two of the stations while the writer helped the students at the other two centers. The writer and the social studies teacher switched places on the second day to enable the social studies teacher to experience the other software programs.

By the third day, several students were ready to use Microsoft 2.0 and write their articles for the newspaper. The writer showed the students how to import the text into another software application program and then how to add clip art pictures. They learned how to use Children's Writing and Publishing Center by Learning Company. During these class periods, the social studies teacher was polishing his word processing skills and

previewing Internet sites that would be useful for their future studies of Ancient Greece. He also helped the students complete their newspapers on the computer so that by the fifth day they were able to print out their files and hand in a finished copy.

The writer was already planning with the science teacher from the other team to incorporate technology into the curriculum focusing on the theme of simple machines. The final product for the students would not involve something on the computer. Instead, for homework, they would be responsible for building a Rube Goldberg Simple Machine incorporating three different simple machines that they had learned about from the software. The writer and the science teacher met during lunch periods. The science teacher previewed several different programs to use as a review of the topic. The students would gather information from the following programs; Science Court/Simple Machines by Tom Synder, Rediscover Science by Edunetics, Miner's Cave by MECC, and Creative Contraptions. It was decided to follow the model that was utilized with the social studies teacher and the other team of students. This model had four different learning stations, each with a different piece of technology. The science teacher wanted to learn how to use the program by Tom Synder so he stationed himself there for the first two days. By the second day, he felt comfortable with the piece of software and the writer and the science teacher switched places so that he could become familiar with the other three programs.

The final two days were spent having the students do a spreadsheet. The science teacher had e-mailed the writer via Hotmail that he was not familiar with spreadsheets and wanted to learn that computer skill. The students used the data that they had gathered during a past science lab experiment. Their results were recorded in their

science lab journals. They had calculated the work done on various items by multiplying the force times the distance. They had learned this formula in science class and were now able to see how the computer was able to do the calculation for them once the correct formula was installed. They learned the same spreadsheet skills that the students from the other team learned. The science teacher learned these skills alongside with the students and at the same time went around the computer lab helping the students. He now felt comfortable to use the four computers near his classroom with the students to make spreadsheets from their lab experiments.

The second teacher training session on using the Internet was scheduled during this week. The special education teacher joined the group. Again, the media specialist along with the writer helped the teachers download the individual files that had been sent via e-mail. They printed out the file that contained good Web sites for teachers and students. This would be used at the next training session. The principal was unable to come. She told the writer that Mondays were not a good day. The writer was unable to get the two teams of sixth-grade teachers to change to another day in order to accommodate the principal. The writer and media specialist encouraged the teachers to continue e-mailing each other and at the same time to practice uploading a file and attaching it to the message. They told the teachers that they were available to help them with these skills at any time. This way, they would get the practice of uploading and downloading file attachments to messages.

The writer then worked with the reading teacher on this team. With the help of the media specialist, the planning was done the previous week after school hours. The students were reading the novel Dragonwings by Lawrence Yep. The book takes place in

San Francisco's Chinatown during the early 1900's. They had stopped reading at chapter thirteen, the point in the book when the San Francisco Earthquake of 1905 occurs. To prepare the students for this event, they viewed a twenty-five minute actual footage of the earthquake from the video The Wrath of God by the History Channel. It was decided to have the students brainstorm after the video and decide for themselves what would be the form of the final project using the technology available to them. Their decision was to do individual newspapers and report the news as actual reporters.

They used the computer lab to gather information about Chinese immigration, Chinatown in San Francisco, and earthquakes (See Appendix K). Along with the help of the media specialist, they used the media center to search appropriate Web sites. After two days, they were ready to start writing their articles using Microsoft 2.0 and then importing the text into Children's Writing and Publishing Center by Learning Company. They learned the same computer skills that the students on the other team had learned when they used these pieces of software. The reading teacher was proficient in word processing skills and was able to assist the students. This writing activity took three class periods. Many students came early and stayed late after school to complete their newspapers.

The third teacher training session focused on using the Internet as a source for the teachers. The media specialist focused on using the Boolean logic when searching for information while the writer stressed using different search engines and typing in URL addresses correctly. The teachers used the list of good Web sites that was prepared by the writer (See Appendix L). They had to download the file and print it out. According

to their disciplines, the teachers worked together previewing the different Web sites. They also learned to bookmark any appropriate sites that they would like to use.

The writer and media specialist worked with the social studies teacher from this team. He was one of the appointed Tech Coaches and was interested in having the students learn Powerpoint. He wanted the students to present their research findings as a Powerpoint Presentation. Since the sixth-grade computer lab did not have this software, arrangements were made with the eight-grade computer teacher to use that lab for one period a day for the week. The eight-grade computer lab was a room attached to the media center. Therefore, the media specialist could help too. She was not proficient in using Powerpoint and also wanted to enhance her skills.

In the sixth-grade computer lab, the students used the word processor for two class periods to type their individual parts on Egyptian Mummies for their oral presentations. At the same time, they used PC Globe to gather information about present day Egypt. For three class periods, each an hour long, the students used the eight-grade computer lab to learn how to use the software application program Powerpoint. The media specialist was present during two of the class periods. During these time periods, the reading teacher used the sixth-grade computer lab for the students to write about the book Dragonwings. This teacher was comfortable being in the lab alone with the students.

With the writer as an assistant, the social studies teacher was comfortable in demonstrating and modeling the software. Along with the help of the writer, he had designed a sample Egyptian Mummy Presentation of six slides. The students learned to view their work in five different ways, add clip art, transitions, effects, and operate the

LCD panel to project their group presentations (See Appendix M). They also learned to copy and paste from one file to another file so that all the individual slides could be put together as a group presentation. The writer used the assessment rubric for student presentations as an evaluation tool (See Appendix G).

During the midpoint of the implementation of the practicum, there were district half-day workshops for teachers. The sixth-grade teachers requested that the time be spent working with the writer and media specialist using the Internet. The teachers continued to preview the Web sites that they had set as bookmarks from the previous training session. During this workshop, the principal and special education teacher were able to spend time with the teachers using the Internet. The social studies teacher shared the Egyptian Mummy Presentations with the other teachers. The consensus was that the next three training sessions be spent on learning how to use the software Powerpoint.

In the past, the two science teachers had always shared lab materials so it was quite natural for them to discuss the activities they had done with their students. Therefore, when it was time to work with the second science teacher, she followed what the other science teacher and students had done. The same pieces of software were utilized and the students created the same spreadsheet on simple machines using the data from their science journals. This teacher had never used spreadsheets before and was as excited as the students when the data was converted into graphs. The students were also responsible for creating a Rube Goldberg Simple Machine incorporating three different machines that they had learned about from the software programs of Science Court/Simple Machines by Tom Synder, Rediscover Science by Edunetics, Miner's Cave by MECC, and Creative Contraptions. This project took five days in the computer lab.

Since this teacher was the other Tech Coach, while in the computer lab, the writer had the science teacher become familiar with the software, Powerpoint. The writer wanted the two Tech Coaches to do one of the training sessions. The social studies teacher taught all three of the teacher training sessions in the eight-grade computer lab. The writer, media specialist, and science teacher helped in assisting the other teachers. These training sessions were scheduled a week apart. In between sessions, the teachers spent time in the computer lab practicing their skills. They learned how to view their work in five different ways, add clip art, transitions, effects, and operate the LCD panel to project their presentations. They also learned how to copy and paste from one file to another file.

The reading teacher was planning to have the students read the same book, Dragonwings, as the other reading teacher had done. This reading teacher wanted to use the various technology programs to introduce the book to the students. She wanted the students to gather pre-reading information about Chinese immigration, Wright Brothers, Chinese dragons, and Chinese culture. These were the four topics that she felt the students needed a stronger background in.

The students were placed into groups of four and five to do their research. The final product would be an oral group presentation with a picture designed on the computer. The group would use the computer program Paintshow to draw their picture and then display it on the large screen for all to see. Each group was given a different topic to research. They used the Internet in the media center, World Book Multimedia Encyclopedia, and Microsoft Encarta 98 Encyclopedia (See Appendix K). After three days of searching for information, they spent one day using the word processor to type

their individual parts for their group presentations and designing their group picture. On the fifth day, using their picture as a backdrop, they presented what they had learned to their classmates. The media specialist was heavily involved in this project helping the students and teacher gather information.

The writer worked a second week with the science teacher who was the Tech Coach. She had learned to use Powerpoint in the teacher training sessions and wanted the students to present group presentations. She had also worked with the other Tech Coach and designed the class sessions in the same manner as he had done with the Egyptian Mummies. Arrangements were made to use the eight-grade computer lab for the week.

This science teacher had organized the classes into groups of four students, each group responsible for researching a different topic about the weather. The different topics were blizzards, hurricanes and thunderstorms, tornadoes, and snowstorms. Each student was responsible for information on a specific area for his or her topic. The previous week, they had spent time researching their specific topics. Again, the media specialist was involved in this activity helping the science teacher, before, during, and after school. On the fifth day, the students presented their Powerpoint Presentations using a new overhead projector that was recently purchased for the school. The students from the other sixth-grade team served as an audience for each class. The writer used the assessment rubic for student presentations as an evaluation tool (See Appendix G).

On the last day of the practicum implementation for this team, the writer had the students assess their own skills in word processing, electronic databases, and presentation software (See Appendix E). During a team-meeting, the five teachers who had

completed working with the writer filled out a post teacher questionnaire (See Appendix A).

The writer began again with the second team by working the math teacher. She wanted to learn to use the programming language Logowriter, in order to introduce the unit on geometry. The writer and this math teacher had used their lunch periods to plan for the week in the computer lab. The students would be required to produce a Logowriter program incorporating the different commands taught and save the program on disk. The program would need to have at least two subprograms in it involving the repeat command.

For the first three days, the students learned the basic Logo commands to make various shapes with the turtle. The math teacher watched and helped the students as the writer taught the lessons. By the fourth day, the math teacher was teaching the lesson and demonstrating on the large computer screen. On the fifth day, the students presented their programs to each other using the large projection screen.

The last teacher training session focused on using the Internet to communicate via e-mail and to search for specific URL addresses. The teachers met fifteen minutes earlier than usual because this evaluation session took an hour. The teachers needed to download and upload a file, send e-mail to individuals and a group, use a Web browser to navigate on the Internet, and use specific search engines like Yahoo, Excite, or Lycos. The writer evaluated the teachers with the performance based assessment rubric for Internet skills (See Appendix D). The principal spent ten minutes at the last session.

The last teacher the writer worked with was the language arts teacher from the second team. He wanted the students to produce an individual poetry book. The students

created different poems like Haiku, Cinquain, and Lyric. They used the computer lab for seven days. They utilized the programs Microsoft 2.0 and Children's Writing and Publishing Center as a tool to accomplish their poetry books. They used the skills of altering font and style, the spell checker and thesaurus, centering the title, Tab key for indenting, importing text and clip art pictures, and saving to disk as opposed to the hard drive. The language arts teacher learned many of these skills alongside the students. By the third day, instead of using the overhead projector, he used the computer with the large projector as a teaching tool to model the different styles of poems.

On the sixth day, each student presented one of their poems to their classmates. As each student recited their poem, he or she used the large projector to display the poem as a backdrop. The writer used the assessment rubric, eliminating the last question (See Appendix F). On the last day of the practicum implementation for this team, the students continued their poetry presentations. The writer had the students assess their own skills in word processing, electronic databases, and presentation software (See Appendix E). During a team-meeting, the five teachers who had completed working with the writer filled out a post teacher questionnaire (See Appendix A).

Chapter V: Results

Results

The problem addressed in this practicum was that the sixth-grade teachers were not utilizing the appropriate software application programs relevant to the curriculum. They had relied on the writer, as the technology teacher, to integrate the technology into the curriculum. Since the writer was the technology teacher for the sixth-grade, the other teachers had not incorporated technology in their subject areas. The teachers were unfamiliar with the computer software programs available in the school. The goal of this practicum was to have the sixth-grade teachers utilize the appropriate software application programs relevant to the curriculum.

Solution strategies employed were 1) teacher training, 2) involvement of the technology teacher and the media specialist, and 3) elimination of technology as a separate subject. Related planned activities associated with the teacher training were teacher training sessions using the Internet and Powerpoint, sharing sessions of the students' work among subject areas and across subject areas, and learning software alongside the students.

Anticipated outcomes related to the teacher questionnaire, assessment, and interviews were expressed as numerals because only 10 teachers were involved. Anticipated outcomes related to the student questionnaire, assessment, and rubrics were expressed in percentages because there were more than 100 students involved. The

outcomes as projected prior to the practicum implementation are listed below. They are followed by results that were documented as described.

1. By the end of the implementation period, there will be an increase in the number of sixth-grade teachers utilizing e-mail and search engines on the Internet for professional growth, as shown by the results of a teacher performance assessment (See Appendix D) and teacher questionnaire (See Appendix A). Success will be demonstrated when at least 5 of the 10 teachers utilize e-mail and search engines on the Internet for professional growth.

This outcome was achieved. The writer evaluated the Internet skills of the teachers and 10 of the10 teachers were able to utilize e-mail and search engines on the Internet for professional growth. Table 1 indicates the results for the sixth-grade teachers' Internet skills. The 10 teachers were rated as proficient or expert in all the Internet skills. Tabulations are presented in Appendix N.

Table 1

Performance Based Assessment for Teacher Internet Skills Data

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Internet Skill	DK	D	P	E
Can you communicate with e-mail to individuals?	0	0	3	7
Can you communicate with e-mail to groups?	0	0	5	5
Can you retrieve your e-mail?	0	0	0	10
Can you reply to the sender of the e-mail?	0	0	0	10
Can you download a file?	0	0	5	5
Can you upload a file?	0	0	4	6

Can you use a Web search engine?	0	0	6	4

Note. There were a total of 10 teachers.

The teachers also assessed their own Internet skills at the beginning and at the end of the implementation of the practicum. These results are presented in Table 2 and show that after completion of the implementation of the practicum, the 10 teachers felt that they were proficient or expert in using the Internet and search engines. Prior to the implementation of the practicum, only 3 of the 10 teachers felt they were proficient or expert in using the Internet and search engines. Tabulations are presented in Appendix O.

Table 2

Teacher Competencies for Internet Skills Data

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Internet Skill		DK	D	P	E
Communicate with e-mail to individuals and	Pre	4	3	2	1
groups	Post	0	0	5	5
Retrieve and receive e-mail	Pre	4	3	1	2
	Post	0	0	3	7
Reply to sender	Pre	4	3	1	2
	Post	0	0	3	7
Download and upload files	Pre	9	1	0	0
	Post	0	0	7	3
Access a specific Web site with appropriate URL	Pre	7	0	2	1
address	Post	0	0	7	3

Use Web search engines	Pre	1	6	2	1
	Post	0	0	7	3

Note. There were a total of 10 teachers.

The results in Table 2 are consistent with the results in Table 1. The pre scores reveal that the teachers did not know how to or were developing proficiency in all the Internet skill areas. There were 7 of the 10 teachers who did not know how to or were developing proficiency in communicating with e-mail. The post scores show that the10 teachers were proficient or expert in Internet skills.

2. By the end of the implementation period, there will be an increase in the percentage of students utilizing word processors, electronic databases, and presentation software to do research reports and presentations. This will be shown by the results of an assessment rubric by the writer for evaluating student word processing documents (See Appendix F) and an assessment rubric for student presentations (See Appendix G). The results of a pre and post student performance based assessment (See Appendix E) will also demonstrate this increase. Success will be verified when at least 50% of the students utilize word processors, electronic databases, and presentation software for research reports and a presentation.

This outcome was achieved. The writer evaluated their word processing skills and the results indicated that 84% of the students on the posttest were at the proficient or expert level in word processing skills compared to 30% of the students on the pretest. The results further indicated that 71% of the students on the posttest were good or proficient in using electronic databases compared to 31% of the students on the pretest.

The results finally indicated that 58% of the students on the posttest were good or proficient in presentation software compared to 0% of the students on the pretest. These results are provided in Table 3. The results for each student were determined by averaging his or her scores over the various skills. They were placed in an appropriate category by this average (See Appendix P). Tabulations are presented in Appendix P and Appendix Q.

Table 3

Student Word Processing, Electronic Databases, and Presentation Skills Data

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Statement		DK	D	P	E
Word Processing Skills	Pre	43 (24%)	83 (46%)	31 (17%)	23 (13%)
	Post	0 (0%)	28 (16%)	29 (17%)	118 (67%)
Electronic Database	Pre	65 (36%)	60 (33%)	43 (24%)	12 (7%)
Skills	Post	0 (0%)	5 (29%)	87 (50%)	37 (21%)
Presentation Software	Pre	174 (97%)	6 (3%)	0 (0%)	0 (0%)
	Post	0 (0%)	74 (42%)	89 (51%)	12 (7%)

Note. There were 180 students on the pretest and 175 students on the posttest. There were 5 students who moved.

At the end of the implementation of the practicum, the students also assessed their own computer skills. The results showed that 94% of the students on the posttest were good or proficient in word processing skills. There were 86% of the students on the posttest good or proficient in using electronic databases. There were 79% of the students on the posttest good or proficient in presentation software.

Table 4 indicates these results. The projection of 50% of the students for success was reached. These results were determined by computing a word processing score, electronic database score, and a presentation score for each individual student based on their responses. Tabulations are presented in Appendix R.

Table 4

Student Self-Assessment of Computer Skills Data

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Statement		DK	D	P	E
Word Processing Skills	Pre	26 (14%)	87 (48%)	37 (21%)	30 (5%)
	Post	2 (1%)	9 (5%)	32 (18%)	132 (76%)
Electronic Database	Pre	60 (33%)	59 (33%)	25 (14%)	36 (20%)
Skills	Post	7 (4%)	18 (10%)	49 (28%)	101 (58%)
Presentation Software	Pre	174 (97%)	6 (3%)	0 (0%)	0 (0%)
	Post	0 (0%)	37 (21%)	126 (72%)	12 (7%)

Note. There were 180 students on the pretest and 175 students on the posttest. There were 5 students who moved.

3. By the end of the implementation period, there will be an increase in the number of teachers who not just have access to a computer lab, but who utilize the lab for assignments and projects. A pre and post student questionnaire and a pre and post teacher questionnaire will show this. Success will be demonstrated when at least 5 of the 10 teachers will not only have access to a computer lab but also utilize the computer lab for students to do assignments and a project.

This outcome was achieved. The students evaluated the teachers as to their use of

technology related to the assignments and projects. On the post questionnaire, (See Appendix B) 89% of the students indicated that the teachers used the computer lab for instruction compared to 3% of the students on the pre questionnaire. There were 84% of the students who indicated on the post questionnaire that the teachers assigned projects and assignments with a technology part compared to 12% of the students on the pre questionnaire. There were 93% of the students who indicated on the post questionnaire that the teachers helped in the computer lab along with the technology teacher compared to 6% of the students on the pre questionnaire. Table 5 represents the findings of the students' responses. Tabulations are presented in Appendix S.

Table 5

Student Questionnaire of Teacher Use of Technology Data

R=Rarely O=Occasionally F=Frequently

Statement		R	O	F
My language arts, reading, math,	Pre	158 (88%)	22 (12%)	0 (0%)
science, and social studies teachers	Post	28 (16%)	90 (51%)	57 (33%)
assign projects and assignments with a technology part.				
My teachers are in the computer lab	Pre	170 (94%)	10 (6%)	0 (0%)
helping me along with the technology	Post	13 (7%)	68 (39%)	94 (54%)
teacher.				
My teachers use a computer lab for	Pre	174 (97%)	6 (3%)	0 (0%)
instruction.	Post	20 (11%)	79 (45%)	76 (44%)

Note. There were 180 students on the pretest and 175 students on the posttest. There were 5 students who moved.

Table 6 shows the results of the teachers' responses in their use of technology related to the assignments and projects of their students. On the post questionnaire, (See Appendix A) 8 of the 10 teachers now agree that technology is an integral part of the classroom activities compared to 3 of the 10 teachers on the pre questionnaire. There were 7 of the10 teachers on the post questionnaire who incorporate technology in their subject area for student assignments compared to 4 of the 10 teachers on the pre questionnaire. There were 6 of the 10 teachers on the post questionnaire who spend time in the computer lab with the students and technology teacher compared to 0 of the 10 teachers on the pre questionnaire. Tabulations are presented in Appendix O.

Table 6

Teacher Questionnaire of Use of Technology Data

VR-Very Rarely R-Rarely O-Ocassionally F-Frequently VR-Very Frequently

Statement		VR	R	O	F	VF
Technology is an integral part of classroom	Pre	3	4	2	1	0
activities.	Post	2	0	5	3	0
I incorporate technology in my subject area	Pre	2	4	2	2	0
for student assignments.	Post	1	2	5	2	0
I incorporate a technology component in my	Pre	2	4	2	2	0
subject area for student projects.	Post	1	0	4	5	0
Spend time in the computer lab with the	Pre	6	4	0	0	0
students and technology teacher.	Post	1	3	3	3	0

Note. There were a total of 10 teachers.

4. By the end of the implementation period, there will be an increase in the number of teachers requiring the use of appropriate computer software

applications programs to use during their classroom activities. The post teacher interviews (See Appendix C) and post teacher questionnaire (See Appendix A) will show this. Success will be demonstrated when at least 5 of the 10 teachers require the use of appropriate software application programs to use during their classroom activities.

This outcome was achieved. The post interviews indicated that all teachers were using technology in their subject areas for student assignments and projects. The comments were positive and favorable. All the teachers responded that they enjoyed having the students use technology. This was also evident from the results in Table 6. As mentioned previously, the post score for the first statement indicates that 8 of the 10 teachers considered technology as an integral part of their classroom activities. By the end of the implementation period, 7 of the 10 teachers incorporated technology in their subject area for student assignments and 9 of the 10 teachers incorporated a technology component in their subject area for student projects. Tabulations are presented in Appendix O.

5. By the end of the implementation period, there will be an increase in the number of teachers involved in the curricular selection and planning of student activities with the technology teacher and the media specialist on a weekly basis. The team-meeting minutes and journal entries will measure the outcome. Success will be demonstrated when at least 5 of the 10 teachers are involved in the curricular selection and planning of the student activities with the technology teacher and the media specialist 6 out of the 12 weekly meetings.

This final outcome was achieved. The writer's practicum journal indicated that the technology teacher and media specialist were involved with 6 of the10 teachers in the curricular selection and planning of the student activities before, during, and after school hours. The minutes from the team-meetings indicate that 6 out of the 12 weekly meetings were spent planning with the team. The writer's practicum journal also indicated that all 10 teachers were involved in the planning of incorporating the technology into their curriculum areas with the technology teacher. Each teacher had met with the writer before the students used the computer lab. These meetings were before, during, and after school hours.

Discussion

The writer is very pleased with the results obtained in this practicum. All the outcomes were achieved beyond expectations. The integration of the technology into the curriculum has proven to be an effective and highly regarded experience for the sixth-grade teachers at this middle school. From the interviews, the teachers summarized the experience as "excellent", "innovative", "worthwhile", "engaging", "interactive", "challenging", and "relevant to the child's real world." Student involvement and enthusiasm infused the building.

The training of the teachers was a challenging experience for the writer. The first outcome of increasing the number of sixth-grade teachers utilizing e-mail and search engines on the Internet for professional growth was successful. All 10 teachers were rated by the writer as being proficient or expert in the skills of e-mailing and searching on

the Web. The writer felt that it was important for the teachers to also self-assess their own skills. It is noteworthy that the teachers tended to under assess their ability relative to the assessment of the writer. From the teacher assessment of their own skills, 7 of the 10 teachers rated themselves as proficient or expert.

The writer believes that this might be attributed to the negative attitudes teachers have with technology. It is known that teachers are afraid of using computers and new technology (Harris & Bruce, 1997). At first, the writer noticed that during the teacher training sessions, some of the teachers were afraid to let the technology teacher and media specialist know that they were having trouble with the e-mail. By the third week, they became more relaxed and comfortable in asking questions via the e-mail as opposed to asking questions during the actual teacher training sessions.

A possible reason could have been that they were afraid to let other teachers see that they were having problems with specific skills. The teachers were on all different levels with their computer skills. On the pretest of teacher competencies for Internet skills, there were 3 of the 10 teachers who rated themselves as proficient or expert. They had let the other teachers know that they were available to help them. The less proficient teachers, including the Tech Coaches, might have felt threatened by these teachers.

However, by the midpoint of the implementation of the practicum, the teachers did feel comfortable enough to ask the more proficient teachers for help. It was amazing to see the growth of the teachers' skills in using the Internet and search engines. It was also thrilling to observe the teachers helping one another no matter what their level of proficiency.

The second outcome of increasing the number of students utilizing word processors, electronic databases, and presentation software to do research reports and presentations was successful. The writer assessed the students and the students assessed themselves. The results are interesting when the two are compared. The writer found 84% of the students on the posttest were at the proficient or expert level in word processing compared to the students' self-assessment where they found 94% of the students at the proficient or expert level. The writer found 71% of the students were at the proficient or expert level in electronic databases compared to the students' self-assessment where they found 86% of the students at the proficient or expert level. The writer found 58% of the students on the posttest were at the proficient or expert level in presentation software compared to the students' self-assessment where they found 79% of the students at the proficient or expert level.

It is noteworthy that in distinction to the teachers assessing themselves, the students over assessed their abilities relative to the assessment of the writer. The writer believes that this might be attributed to the positive attitudes students have with technology. They are used to using computers, VCR's, and other components of technology. They have grown up in the Technology Age (Thornburg, 1989).

The third outcome of increasing the number of teachers who not just have access to a computer lab, but who utilize the lab for assignments and projects was successful. The students assessed the teachers and the teachers assessed themselves. On the post questionnaire, 89% of the students indicated that the teachers used the computer lab for instruction compared to 8 of the 10 teachers agreeing that technology is an integral part of the classroom activities. There were 84% of the students who indicated on the post

questionnaire that the teachers assigned projects and assignments with a technology component compared to 7 of the 10 teachers stating that they incorporated technology into the curriculum.

The writer finds this interesting because in the previous outcomes, there were differences in the results of the teachers and the students assessing themselves. For this outcome, the results were similar. The writer would have expected the teachers to under assess themselves as they had done in the first outcome. The implementation of the Tech Coaches was an unplanned event that might have helped to contribute to the success of this third outcome. The transfer of new techniques to the classroom is far more likely to occur when the teachers work together and employ peer coaching (Caverly, Peterson, & Mandeville, 1997; Brown & Henscheid, 1997). The writer is not sure why this did not affect the first outcome more positively in the teachers' assessment of themselves.

The classroom teachers were able to teach their individual subject areas with the computers as a tool. They had access to a computer lab (Dickey & Kherlopian, 1987). Having the technology teacher working with the classroom teachers individually and training their students was a worthwhile experience for everyone involved. The classroom teachers were able to learn about the computers while using them with their students (Gilmore, 1995; Kearsley & Lynch, 1992; Willis, 1997). Students are often viewed as the recipient of education. Teachers need to discover the power inherent in allowing the students to take a leadership role. The writer feels that the students were a positive variable in this outcome and helped to lead to the success.

The teachers benefited by having the students help them in the computer lab. It changed the manner in which the teachers teach. They were more in the role of being a

facilitator and coach instead of a lecturer. One teacher commented, " I can't believe that it worked. I never thought that I could teach with different stations in the room where the students were doing different assignments. The idea that I could do this with computers was inconceivable."

A major contribution to the success of the fourth and fifth outcome of the practicum, was having all parties involved working collaboratively (Fahy, 1985; Day & Scholl, 1987). Throughout the whole process, the writer, classroom teachers, and media specialist worked together in the planning and implementation of integrating the technology into the curriculum. Even though there was no written vision statement, they were all on the same frame of reference using communicating, collaboration, and creative problem solving (Thornburg, 1989). The writer considers these three items important ingredients to use when different parties are working together.

The involvement of the media specialist in all the teacher training sessions on the Internet and Powerpoint, and in the planning sessions with the individual teachers helped in the success of the practicum. The writer feels that the media specialist played a key role in encouraging positive attitudes for the integration of technology into the curriculum.

Another positive factor was that technology was not a separate subject for the students. It was always part of a subject area. The focus was on learning how to integrate the computers into the curriculum and not on learning about the computers (Ringstaff & Yocam, 1994). The writer would like to mention an unexpected event that occurred as a result of eliminating technology as a separate subject. The seventh-grade and eighth-grade computer teachers were interested in the practicum before

implementation even occurred. Since technology was considered a separate subject before implementation of the practicum, they felt that this might have an impact on the way they teach technology in our school. They conveyed a fear of having the classroom teachers teach software application programs like Powerpoint or Logowriter. They were not comfortable with the two Tech Coaches and felt that they were not qualified to teach computers to other teachers. They felt that their job was being infringed upon. This indicates that to achieve a full integration of technology into the curriculum on all grade levels in this school, teacher resistance barriers need to be broken down. These barriers come as much from the technology teachers as the classroom teachers.

In conclusion, the writer was successful in achieving all the outcomes. The teachers became acquainted with the various software programs relevant to the curriculum and at the same time improved their computer skills. The students, teachers, and writer benefited by having technology integrated into the curriculum.

In addition to the basic results there were certain other interesting outcomes of the practicum. The writer feels that it is important to note these. First and perhaps most important, the teachers from the inception of the practicum, have used the computer both more for instruction and for their own professional use. There were 9 of the 10 teachers on the post questionnaire who owned a home computer compared to 7 of the 10 teachers on the pre questionnaire. Furthermore, there were 8 of the 10 teachers on the post questionnaire who had access to an Internet provider at home compared to only 4 of the 10 teachers on the pre questionnaire (See Appendix O).

The writer feels that this increase in the computer usage could have contributed to the teachers' attitudes being more positive. It also could have contributed to the rise in

the comfort level of the teachers. All 10 teachers on the post questionnaire were comfortable using technology with their students compared to only 5 teachers on the pre questionnaire. Further, the teachers have taken additional computer classes. There were 9 of the 10 teachers on the post questionnaire who answered that they were taking more computer classes to update their skills compared to only 3 of the 10 teachers on the pre questionnaire (See Appendix O).

The writer exposed the teachers to the technology and they were further able to enhance their skills at home. The combination of the on-going support and practice were important variables that contributed to the success of this practicum (Dickey & Kherlopian, 1987; Schug, 1988).

Recommendations

This practicum was designed to have the sixth-grade teachers utilize the appropriate software application programs relevant to the curriculum. They had relied on the writer, as the technology teacher, to integrate the technology into the curriculum. The teachers were unfamiliar with the computer software programs available in the school. The goal of this practicum was to have the sixth-grade teachers utilize the appropriate software application programs relevant to the curriculum. The writer would make the following recommendations to those who would like to replicate this program.

1. Eliminate technology as a separate subject. The subject technology should be integrated into the curriculum, instead of being added on the curriculum. For example, when the science teacher needs to convert lab data into a spreadsheet, the technology

teacher in the building should team-teach with that teacher and incorporate the appropriate computer software application program into science.

2. Each school needs to have a technology plan. Technology is rapidly changing. In order to obtain the maximum benefits from the new and emerging technologies, the writer feels that it is necessary to develop a three-year plan. Staff development should be a major focus of the plan. This teacher training program needs to be site-based, in a relaxed environment, on-going, and relevant to the way the teachers might work together in the various disciplines related to the curriculum.

3. Mentoring relationships between staff members can prove a highly personalized means of increasing proficiency in various areas of technology. This one-on-one training can be very effective in increasing the integration of the computer into the classroom setting. Peer teaching and coaching can increase collaboration among the teachers.

4. Technology can move forward the agenda of systemic reform in education. By giving to students various experiences in selecting appropriate technology tools for assignments and projects, the role of the classroom teacher can change from lecturer to facilitator and coach. The students can help the teachers in the computer lab. The teachers need to witness the positive accomplishments of the students doing their assignments and projects firsthand. This will help to change the teachers' attitudes toward technology in a positive fashion.

5. Administrative support is extremely important when trying to produce change. Be sure to get the principal involved from the beginning. For example, include the

principal in training session on Powerpoint. He or she can utilize this piece of software at the next parent meeting. Show how technology can enhance their job.

Dissemination

The success of the practicum led to change in the way technology in the sixth-grade is taught. It is not a separate subject. In order to complete many assignments and projects, the students are using it as a tool with their classroom teacher in the computer lab working along side them. The sixth-grade teachers have indicated that they would like to continue the teacher training sessions throughout the year.

The response among the seventh and eighth-grade technology teachers and classroom teachers has been more positive. They were impressed that the sixth-grade students were able to learn Powerpoint and produce group slide shows. They also want to reevaluate the technology curriculum and the technology plan in the school. The writer has been brainstorming with them on how their teams can apply the ideas presented.

The writer plans to share the results of this practicum with the school faculty at one of the monthly meetings planned by the principal. The writer also plans to disseminate the results with the other technology teachers in the district, the curriculum administrator, and district technology steering committee. The writer will be able to do this at one of the after school meetings planned by the curriculum administrator. In addition, the writer plans to share the experiences and results at a state computer conference.

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APPENDIX A

SIXTH-GRADE TEACHER QUESTIONNAIRE

May 29, 1998

Dear Sixth Grade Middle School Teacher,

I am a doctoral candidate collecting data for my practicum under the supervision of Dr. Mitzi Burden at Nova Southeastern University. Your thoughts and opinions are important and I would like to include them in my research. The purpose of this questionnaire is to gather material to accurately describe technology in a middle school. The questionnaire is voluntary. It will remain entirely confidential. If you decide to participate, the questionnaire will take approximately 30 minutes.

Thank you.

Sincerely,

Linda Fine

Doctoral Candidate

Nova Southeastern University

This questionnaire is designed to obtain your perceptions of technology and education. Some questions consider your feelings, attitudes, and beliefs about your teaching and technology. Please answer the questions honestly and frankly. Thank you for your cooperation.

1. How many years, have you been employed as a full time teacher?_____
2. How many years have you been employed as a middle school teacher?_____
3. How many years have you been employed in this middle school?_____
4. What subject area do you teach?_____
5. What is the highest degree you have completed?_____
6. How long have you been using a computer?

   _____not at all _____over a year

   _____a year to 5 years _____5 years to 10 years

   _____10 years to 15 years _____over 15 years

7. How many hours a week do you use a computer?

   _____hours for my school related usage

   _____hours for my own personal usage

8. Do you own a home computer?_____
9. How old is your computer?_____
10. Do you have access to an Internet provider?_____

Write a short explanation of your definition of integration of technology into the curriculum.

Please indicate how often the following statements occur by filling in the blank with the appropriate number.

1	2	3	4	5
Very Rarely	Rarely	Occasionally	Frequently	Very Frequently

_____12. Technology is integrated into the curriculum in sixth grade.

_____13. Technology is an integral part of my classroom activities.

_____14. I incorporate technology in my subject area for student assignments.

_____15. I incorporate a technology component in my subject area for student projects.

_____16. I have access to a computer lab for my students to use technology.

_____17. I have access to about four computers for my students to use technology.

_____18. The students use technology in the school.

_____19. The students have access to a computer lab in the school with a technology teacher.

_____20. I spend time in the computer lab with the students and technology teacher.

_____21. My schedule allows me to spend time in the computer lab with the students and technology teacher.

_____22. The students have technology as a separate subject.

_____23. I discuss curriculum with my team on a weekly basis.

_____24. I discuss curriculum with the technology teacher on a weekly basis.

_____25. I discuss curriculum with the media specialist on a weekly basis.

_____26. I take computer classes to update my technology skills.

_____27. There are computer classes available to staff in my school district.

Please indicate the degree to which you agree or disagree with each statement by filling in the blank with the appropriate number.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

_____28. Technology should be integrated into my class assignments and projects.

_____29. The students are using technology to do my class assignments and projects.

_____30. I know what the students are doing in technology class.

_____31. I am comfortable using technology with my students.

_____32. I am familiar with the technology hardware and software available to use with my students in my subject area.

_____33. Subject area teachers should work along with the technology teacher and media specialist to integrate the technology into the curriculum.

Please use the appropriate number to describe your technology competencies for the different skill areas.

1 = don't know how to

2 = developing proficiency

3 = proficient

4 = expert

Computer Operations and Concepts:

_____34. Start up and shut down a computer system

_____35. Point, click, and drag a mouse

_____36. Select, open, and move icons

_____37. Use pull-down and pop up menus

_____38. Use a scroll bar

_____39. Save on a hard drive with a file name

_____40. Save on a disk with a file name

_____41. Copy a document from a disk to a hard drive and vise versa

_____42. Open and close applications

_____43. Work with more than one application at a time

Local Area Networks:

_____44. Use a file server to connect, log on and retrieve applications

_____45. Save a document to a specified location on a file server

_____46. Connect to other file servers on the network

Word Processing:

_____47. Create a basic document

_____48. Use the tool bar basics like copy, paste, move, etc.

_____49. Create a newsletter

_____50. Create a flyer with graphics elements

Database:

_____51. Create a database

_____52. Use the toolbar basics like sort, arrange fields, etc.

_____53. Search and sort a database by specific fields

_____54. Create and print reports

_____55. Insert database fields into word processing document

Spreadsheets/Graphing:

_____56. Create a spreadsheet

_____57. Use tool bar options like graphing

_____58. Create and generate a report

_____59. Insert a spreadsheet into a word processing document

Telecommunications:

_____60. Configure a modem for access

_____61. Communicate with e-mail to individuals and groups

_____62. Retrieve and receive mail

_____63. Reply to sender

_____64. Use a Web browser to navigate on the Internet

_____65. Access a specific Web site with appropriate URL address

_____66. Use Web search engines

_____67. Create bookmarks or hot lists

_____68. Know of educational Web sites for my own use and my students use

_____69. Download and upload files

_____70. Create and maintain a Web page

Media Communications and Troubleshooting:

_____71. Use self-help resources to correct common hardware, software, and printing problems

_____72. Operate a VCR player

_____73. Operate a CD ROM

_____74. Operate a laserdisk player

_____75. Operate a LCD projector

_____76. Operate a camcorder

_____77. Operate a scanner

_____78. Produce electronic slides show

APPENDIX B

SIXTH-GRADE STUDENT QUESTIONNAIRE

This questionnaire is for sixth graders. Please answer the following questions by circling the appropriate word.

1. What sixth grade team are you on?

   White Turquoise

2. What is your gender?

   Male Female

3. Were you born in this country?

   Yes No

4. What is your ethnic background?

   Caucasian African American Hispanic Asian European

   Other_____

5. Do you own a computer at home?

   Yes No

6. Do you use the Internet at home?

   Yes No Not sure

7. I use technology in this school.

   Rarely Occasionally Frequently

8. My language arts, reading, math, science, and social studies classroom teachers assign projects and assignments with a technology part.

   Rarely Occasionally Frequently

9. During technology class, I use the school technology to do assignments and projects for my classroom teachers.

Rarely Occasionally Frequently

10. My language arts, reading, math, science, and social studies classroom teachers are in the computer lab helping me during technology class.

Rarely Occasionally Frequently

11. Do any of your classroom teachers, besides your technology teacher, use technology as part of your assignments and projects?

Yes No Not sure

12. During technology class, I use the school technology to do assignments and projects for my technology teacher.

Rarely Occasionally Frequently

13. My language arts, reading, math, science, and social studies classroom teachers use a computer lab for instruction.

Rarely Occasionally Frequently

APPENDIX C

SIXTH-GRADE TEACHER INTERVIEW QUESTIONS

Structured Interview Questions for Staff

1. Does the team have a vision statement of how we want to use technology to help students to learn?
2. Describe using technology as an aid in the classroom.
3. Describe technology as a subject.
4. Describe technology as an empowerment tool.
5. Do you encourage your students to employ technology in class activities and projects?
6. Would you like to blend the use of technology into your classroom learning activities? What items are important in order to be able to do this?
7. Do you use the computer lab with your students?
8. If you had access to a technology lab with a technology teacher, would you bring your class? What kinds of activities would you like to do?
9. Describe how you feel about using technology. Outline what technical skills are your strengths and what skills are your weaknesses.

APPENDIX D

PERFORMANCE BASED ASSESSMENT RUBRIC FOR TEACHER INTERNET SKILLS

Performance Based Assessment Rubric for Teachers' Internet Skills

These are the questions that the writer will ask the sixth-grade teachers while observing them individually using the Internet. The following numbers be will used to describe the technology competencies for the teachers' Internet skills.

1 = don't know how to

2 = developing proficiency

3 = proficient

4 = expert

1. _____ Can you communicate with e-mail to individuals?
2. _____ Can you communicate with e-mail to groups?
3. _____ Can you retrieve your e-mail? (The writer will have sent a message prior to this.)
4. _____ Can you reply to the sender of the e-mail message?
5. _____ Can you use a Web browser to navigate on the Internet?
6. _____ Can you access a specific Web site with appropriate URL address? (Use the Web site address http://www.gsh.org)
7. _____ Can you use a Web search engine like Yahoo, Excite, Lycos, or Infoseek?
8. _____ Can you create a bookmark or a hotlist?
9. _____Do you know of any Web sites for your own use?
10. ____ Do you know of any Web sites for the students to use?
11. ____ Can you download a file? (The writer will have sent a file to download prior to this.)
12. _____ Can you upload the file?

APPENDIX E

SIXTH-GRADE ASSESSMENT OF STUDENT COMPUTER SKILLS

Sixth-Grade Assessment of Student Computer Skills

The writer will use this tool to have the students assess their own skills in word processing, electronic databases, and presentation software.

1 = I don't know how to

2 = I am satisfactory

3 = I am good

4 = I am an expert

Word Processing Program

1 _____ I can create a new file to do a document.

2 _____ I can save a file on a disk.

3 _____ I can retrieve a file from a disk.

4 _____ I can center a title.

5 _____ I can tab for paragraphs.

6 _____ I can leave two spaces after periods and start a new sentence with a capital letter.

7 _____ I can change fonts.

8 _____ I can use bold, underline, and italics.

9 _____ I can use the spell checker and thesaurus.

10 _____ I can preview and print a document double-spaced.

Electronic Database Program:

11. _____ I can search on an electronic database program.

12. _____ I can print the information from my search.

Presentation Software Program:

13. _____ I can use a computer software application program to do a presentation in front of my classmates.

14. _____ I can import text or graphics from a different program into my presentation.

APPENDIX F

SIXTH-GRADE ASSESSMENT RUBRIC FOR STUDENT WORD PROCESSING REPORT

Sixth-Grade Assessment Rubric for Student Word Processing Report

The writer will use this rubric to assess the students' disk and written report.

1 = don't know how to

2 = developing proficiency

3 = proficient

4 = expert

Word Processing Program:

15. _____ create a new file to do a document

16. _____ save a file on a disk

17. _____ retrieve a file from a disk

18. _____ center the title

19. _____ tab for paragraphs

20. _____ leave two spaces after periods and start a new sentence with a capital letter

21. _____ change fonts

22. _____ use bold, underline, and italics

23. _____ use the spell checker and thesaurus

24. _____ preview and print the document double spaced

25. _____ include at least one electronic database in the references

APPENDIX G

SIXTH-GRADE ASSESSMENT RUBRIC FOR STUDENT PRESENTATION

Sixth-Grade Assessment Rubric for Student Presentation

The writer will use this rubric to assess the students' computer presentation.

1 = don't know how to

2 = developing proficiency

3 = proficient

4 = expert

Computer Presentation Program

1 _____ create a slide show

2 _____ add and delete slides

3 _____ import text or graphics

4 _____ run a slide show

5 _____ presentation can be seen by an audience of 25 students (appropriate text size and color)

APPENDIX H

LESSON PLAN INFORMATION

A Sample Lesson Plan Unit

The writer has divided this lesson plan unit into three parts. The content includes the objectives that are taught. The process incorporates how the lesson unit is taught. The product involves the assessment or evaluation.

Content

Unit: Patterns All Around Us

Topic: A Healthy Diet Based on USDA Guidelines

Guiding Question: What are the foods that are important for a healthy diet of an adolescent in the sixth-grade?

Curriculum Areas: Language Arts, Math, and Technology

Objectives: 1. Describe the basics of a healthy diet.

2. Effectively use the components and steps in developing a research report.

3. Write a research report with references.

4. Develop a spreadsheet with appropriate formulas.

5. Display data in tables and charts.

Time Allotted: 3 weeks

Process

Activity I

The students will gather research on a specific topic related to nutrition. They will utilize various books, CD ROMS, and the Internet. They will rotate through different stations in the media center for approximately four days. The students will work together in cooperative learning groups. They will be grouped according to similar

topics. To enhance academic achievement, the students will utilize coaching techniques. They will record information on note cards. The note cards will be used to develop an outline for their research paper with references using a word processing program.

Activity II

Students will use the computer lab to type their outline, table of contents, report, and references. They will need to learn various word processing skills like copying, pasting, changing fonts, centering text, saving, and loading files.

Activity III

As a homework assignment the students will keep a daily food diary for five days. They will use the data to make a chart comparing their diet to the USD

A guidelines. They will utilize a spreadsheet program to display their findings. They will learn about cells, formulas, and graphs ("Nutrition Track," 1999).

Product

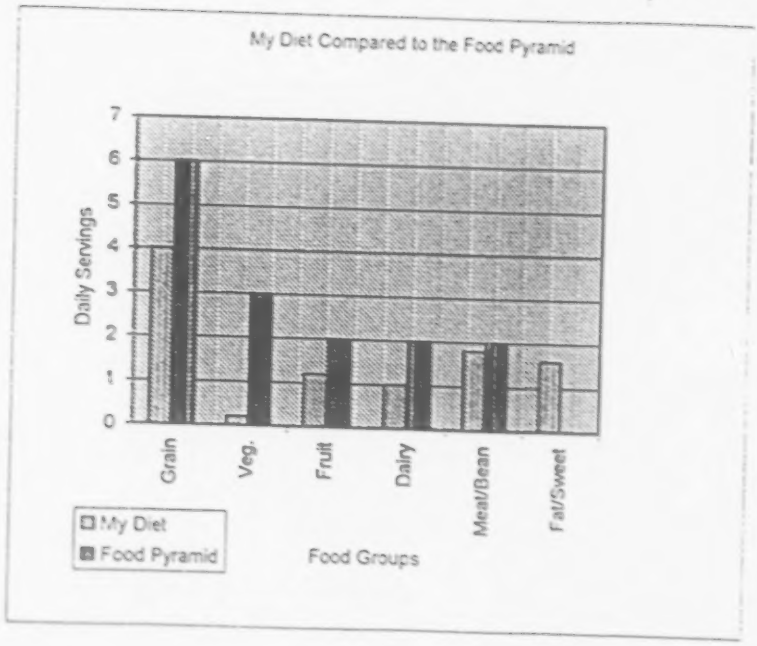
Assessment

Write a research report with references. The language arts teacher will evaluate the report.

Display nutrition data in graphs and charts. The math teacher will evaluate this activity.

The technology teacher will evaluate the usage of word processing and spreadsheet skills.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 5Avg	Recommend
Grain	3	4	5	4	4	4	6
Veg	0	0	1	0	0	0.2	3
Fruit	1	1	2	1	1	1.2	2
Dairy	1	1	1	1	1	1	2
Meat/Bean	1	2	2	2	2	1.8	2
Fat/Sweet	2	1	2	2	1	1.6	0



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HOMEWORK FOR NOVEMBER 10 - 14

During the next five days, you are to create a food diary based on the foods you eat. You must keep track of what you eat for breakfast, lunch, dinner, and snacks. You are to also estimate how many servings of carbohydrates, vegetables, fruit, protein, dairy, and fats you have during each meal. The Food Pyramid Guideline below will help you to estimate how many servings you have at each meal.

Food Pyramid Guidelines

Carbohydrates: 1 slice of bread; 1 ounce of cereal; 1/2 cup of cooked cereal, rice, or pasta
Vegetables: 1 cup of raw leafy vegetables 1/2 cup cooked vegetables 3/4 cup of vegetable juice
Fruit: 1 medium apple, banana, or orange 1/2 cup cooked, chopped or canned fruit 3/4 cup of fruit juice
Protein: 2-3 ounces of lean meat, poultry, or fish 1-1 1/2 cups of cooked dry beans 2 eggs 4-6 tablespoons of peanut butter
Dairy: 1 cup of milk/yogurt 1 1/2 - 2 ounces of cheese
Fats/ Sweets: Use sparingly

Due Monday for Math/Tech/Language Arts

APPENDIX I

FREE HOTMAIL INFORMATION

Hotmail Information

You can obtain a free e-mail address from a company on the Internet. The address is http://www.hotmail.com. When you get to this Web site, it is very easy to follow the simple directions and log in. Once you obtain your own address, you can e-mail anyone in the world who also has an e-mail address. The companies do not need to be the same.

APPENDIX J

STUDENT WORKSHEETS FOR SOCIAL STUDIES UNIT ON EGYPT

Name_____ Date_____
Group_____

P C Globe

Egypt

Answer the following questions concerning modern day Egypt.

1. Name three countries that border Egypt. _____,_____, and _____.

2. Draw an outline map of Egypt on the bottom of the second page. Draw the Nile River. Label the three largest cities. Shade the places with the highest elevations.

3. In what four months does Egypt receive its largest amount of rain.?____, ____, ____, ____. How much rain falls in each of these months?

4. In what five months does Egypt receive its least amount of rain? _____, _____, _____, _____, _____. How much rain falls in each of these months?

5. List four types of energy on which Egypt depends. _____, _____, _____, and _____.

6. What is the average number of teachers for the three areas listed below?
Elementary_____ Secondary_____ University_____

7. List any ten major manufacturing industries.

1._____	2._____
3._____	4._____
5._____	6._____
7._____	8._____
9._____	10._____

8. If you were to travel to Egypt today, what type of vaccinations would be required?
_____, _____, _____, _____, _____

9. What type of government does Egypt have? _____

10. Draw a picture of Egypt's flag in the rectangle.

_____

_____

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11. Which month has the highest average temperature?_____
Which month has the lowest average temperature?_____

12. In agriculture what are the four largest crops produced?
_____, _____, _____, _____

13. What percentage of the male population is age 20-29? _____

14 What is the average life expectancy of a man and a women in Egypt.
Man_____ Woman_____

15. What is the main language spoken in Egypt? What percentage of people speak that language?
_____ _____

16. What are the four largest products mined in Egypt?
_____, _____, _____, _____

17. Listen to Egypt's national anthem. What is the name of that national anthem?
_____

Name Date
Group Subject

Knowledge Adventure/Egypt

Answer in complete sentences.
Find these answers under E for Egypt. Click on Pyramids.

Fully-Equipped Tombs (2500BC)
What are the tombs made of?

Where were the tombs constructed?

Who constructed the tombs?

What did the Egyptians perceive afterlife similar to?

What did they believe about the soul?

Find these answers under E for Egypt. Click on Rosetta Stone.

Recovering A Lost Civilization (196BC)
What is hieroglyphics?

What is the Rosetta Stone?

Where is the Rosetta Stone located now?

APPENDIX K

SAMPLE STUDENT REFERENCES FOR RESEARCH REPORT ON DRAGONWINGS

References

"Earthquakes". Microsoft Encarta 98 Encyclopedia. [CD ROM]. 1998. Microsoft.

"San Francisco Earthquake". Rediscover Science. [CD ROM]. 1991. Edunetics.

"San Francisco Earthquake." Knowledge Adventure. [CD ROM]. 1992. IBM Co.

"Earthquake Predictions". The Restless Earth. [Laserdisk]. 1991. National Geographic.

"The Wrath of God." Disasters. [Video]. 1990. History Channel.

"Earthquakes". World Book Multimedia Encyclopedia. [CD ROM]. 1995. World Book, Inc.

Yep, Laurence. Dragonwings. 1975. Harper .

APPENDIX L

WEB SITES FOR MIDDLE SCHOOL TEACHERS

Good Web Sites for Middle School

http://www.Middleweb.com

Great Internet site for middle school teachers

http://www.aisr.brown.edu

Annenberg Institute for School Reform

http://www.fortunecity.com/millenium/garston/49/multintell

Multiple Intelligences

http://www.capecod.net/schrockguide/index.htm

Kathy Schrock's Guide for Educators

http://www.classroom.com

Classroom Connect

Additional Sites:

http://rogerstuff.net/members/~rippowam
Our school site

http://www.middleschool.com
Champion site for Middle School Partnership

APPENDIX M

STUDENT WORKSHEETS FOR POWERPOINT PRESENTATION

Mummy Madness

All you ever wanted to know about mummies... and more.

Your group is responsible for giving a 20/30 minute presentation on mummies. The presentation should include the following as a minimum.

1. The introduction should offer the definition of a mummy. Explain the reasons for which different cultures have made mummies. Display a map that highlights the different cultures that have created mummies and where accidental mummies have been found.

2. A step by step "live" demonstration of how an Egyptian mummy was made.

3. Explanation of non-Egyptian mummies. There are many kinds!

4. A demonstration or a skit which explains what scientists can learn from the examination of a mummy.

5. A musical segment: an original song, a jingle, or something else of your own choosing.

6. A reading of a poem for two (or more) voices.

7. Original art work.

It is expected that all students in the group will be responsible for some part of each of the following: research, reading, writing, art work, and presentation. Several class periods will be devoted to assisting groups in the development of this presentation. This does not eliminate the need to get to a library and do some research on your own. Clearly there will be much work that you must do on your own. I am available to stay after school with individuals or whole groups on the following dates:

Fri. 12/11 (no late bus)
Mon. 12/14
Mon. 12/21
Tues. 12/22
Tues 1/5

Let me know the day before if you wish to stay. This way I have some control over the number of students who will be staying. Also, as always a note is required giving you permission to stay.

This project is due the week of January 11. Start working and gathering information now!!!!!

Mummy/Pyramid Power Point Presentation

Each group is responsible for producing at least six power point slides for their presentation. I have suggested some ideas below. You may adapt slides to your needs however.

1. Topic Slide
   - Title
   - Presenters

2. Introduction
   - List topics covered in introduction

3. Egyptian Pyramids
   - Mastabas
   - stepped
   - bent
   - true

Include a comment about each type.

4. Construction
   - Tools/Technology

5. Importance of pyramids
   - List some key ideas

6. Closing slide

Content: Title Slide

Content: Table of Contents Slide

APPENDIX N

PERFORMANCE BASED ASSESSMENT RUBRIC FOR TEACHER INTERNET SKILLS TABULATION REPORT

Performance Based Assessment Rubric for Internet Skills

10 teachers total

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Statement	DK	D	P	E
1.	0	0	3	7
2.	0	0	5	5
3.	0	0	0	10
4.	0	0	0	10
5.	0	0	4	6
6.	0	0	4	6
7.	0	0	6	4
8.	0	0	0	10
9.	0	0	0	10
10.	0	0	0	10
11.	0	0	5	5
12.	0	0	6	4

APPENDIX O
SIXTH-GRADE TEACHER QUESTIONNAIRE TABULATION REPORT

Sixth-Grade Teacher Pre Questionnaire Tabulation Report: 10 teachers total

1. How many years, have you been employed as a full time teacher?

1-3 years	4-7years	8–10 years	10-15 years	over 20 years
2	1	1	2	4

2. How many years have you been employed as a middle school teacher?

1 year	2-5 years	6-10 years	over 10 years
1	2	5	1

3. How many years have you been employed in this middle school?

1 year	2-5 years	6-10 years
2	2	6

4. What subject area do you teach?

Reading	language arts	social studies	science	math
2	2	2	2	2

5. What is the highest degree you have completed?

Bachelor of Science	Masters	6th Year
2	6	2

6. How long have you been using a computer?

Under 1 year	1-5 years	5-10 years	over 15 years
1	3	3	3

7. How many hours a week do you use a computer?

hours for my school related usage

0 hours	1-2 hours	3-5 hours	6-10 hours
2	5	2	1

hours for my own personal usage

0 hours	1-2 hours	3-5 hours	6-10 hours
3	4	2	1

8. Do you own a home computer?

No	yes
3	7

9. How old is your computer?

1-3 years	3-5 years	more than 5 years
2	4	1

10. Do you have access to an Internet provider?

Yes	no
4	6

Sixth-Grade Teacher Post Questionnaire Tabulation Report: 10 teachers total

1. How many years, have you been employed as a full time teacher?

1-3 years	4-7years	8–10 years	10-15 years	over 20 years
	1	1	2	4

2. How many years have you been employed as a middle school teacher?

1 year	2-5 years	6-10 years	over 10 years
1	2	5	1

3. How many years have you been employed in this middle school?

1 year	2-5 years	6-10 years
2	2	6

4. What subject area do you teach?

Reading	language arts	social studies	science	math
2	2	2	2	2

5. What is the highest degree you have completed?

Bachelor of Science	Masters	6th Year
2	6	2

6. How long have you been using a computer?

Under 1 year	1-5 years	5-10 years	over 15 years
1	3	3	3

7. How many hours a week do you use a computer?

hours for my school related usage

0 hours	1-2 hours	3-5 hours	6-10 hours
0	5	4	1

hours for my own personal usage

0 hours	1-2 hours	3-5 hours	6-10 hours
1	7	1	1

8. Do you own a home computer?

No	yes
1	9

9. How old is your computer?

1-3 years	3-5 years	more than 5 years
4	4	0

10. Do you have access to an Internet provider?

Yes	no
8	2

Sixth-Grade Teacher Pre and Post Questionnaire Tabulation Report: 10 teachers total

VR=Very rarely R=Rarely O=Occasionally F=Frequently VF= Very frequently

Statement		VR	R	O	F	VF
12.	Pre	0	2	3	3	2
	Post	0	0	0	4	6
13.	Pre	3	4	2	1	0
	Post	2	0	5	3	0
14.	Pre	2	4	2	2	0
	Post	1	2	5	2	0
15.	Pre	2	4	2	2	0
	Post	1	0	4	5	0
16.	Pre	3	3	2	2	0
	Post	0	1	5	3	1
17.	Pre	1	2	2	1	4
	Post	0	3	2	1	4
18.	Pre	0	0	1	5	4
	Post	0	0	1	3	6
19.	Pre	0	0	1	3	6
	Post	0	0	1	2	7
20.	Pre	6	4	0	0	0
	Post	1	3	3	3	0
21.	Pre	3	4	1	1	1
	Post	1	3	0	6	0
22.	Pre	0	0	0	3	7
	Post	8	2	0	0	0
23.	Pre	0	0	2	4	6
	Post	0	0	0	1	7
24.	Pre	1	4	3	2	0
	Post	0	0	2	3	5
25.	Pre	2	5	3	0	0
	Post	0	1	4	3	2
26.	Pre	4	3	3	0	0
	Post	0	1	3	3	3
27.	Pre	0	3	1	4	2
	Post	0	2	2	3	3

SD=Strongly disagree D=Disagree N=Neither agree/disagree A=Agree SD= Strongly agree

Statement		SD	D	N	A	SD
28.	Pre	0	0	3	2	5
	Post	0	0	0	4	6
29.	Pre	2	4	2	2	0
	Post	0	1	4	2	3
30.	Pre	0	3	2	4	1
	Post	0	0	0	7	3

31.	Pre	0	5	0	3	2
	Post	0	0	0	7	3
32.	Pre	2	3	0	4	1
	Post	0	0	0	6	4
33.	Pre	0	0	3	3	4
	Post	0	0	0	3	7

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Statement		DK	D	P	E
34.	Pre	0	1	5	4
	Post	0	1	2	7
35.	Pre	0	1	5	4
	Post	0	0	2	8
36.	Pre	0	1	4	5
	Post	0	1	2	7
37.	Pre	0	3	3	4
	Post	0	0	3	7
38.	Pre	1	2	2	5
	Post	0	0	3	7
39.	Pre	1	2	2	5
	Post	0	2	2	6
40.	Pre	1	2	3	4
	Post	0	1	3	6
41.	Pre	2	1	4	3
	Post	0	3	1	6
42.	Pre	1	1	5	3
	Post	0	2	1	7
43.	Pre	7	1	1	1
	Post	1	4	1	4
44.	Pre	4	2	1	3
	Post	0	4	4	2
45.	Pre	7	0	1	2
	Post	1	4	0	5
46.	Pre	7	1	1	1
	Post	4	2	4	0
47.	Pre	0	0	5	5
	Post	0	0	2	8
48.	Pre	1	3	1	5
	Post	0	1	2	7
49.	Pre	2	4	2	2
	Post	0	2	2	6
50.	Pre	1	5	2	2
	Post	0	2	2	6
51.	Pre	5	3	2	0

	Post	3	2	2	3
52.	Pre	5	3	2	0
	Post	3	2	2	3
53.	Pre	7	1	1	1
	Post	3	3	3	1
54.	Pre	7	2	0	1
	Post	4	0	4	2
55.	Pre	8	1	0	1
	Post	4	3	3	0
56.	Pre	4	4	1	1
	Post	1	1	6	1
57.	Pre	4	4	1	1
	Post	2	2	5	1
58.	Pre	5	3	2	0
	Post	3	3	3	1
59.	Pre	8	2	0	0
	Post	5	2	2	1
60.	Pre	6	1	3	0
	Post	6	1	3	0
61.	Pre	4	3	2	1
	Post	0	3	2	5
62.	Pre	4	3	1	2
	Post	0	2	3	5
63.	Pre	4	3	1	2
	Post	0	2	3	4
64.	Pre	4	1	3	2
	Post	0	3	3	4
65.	Pre	7	0	2	1
	Post	0	3	4	3
66.	Pre	1	6	1	2
	Post	0	3	4	3
67.	Pre	6	0	2	2
	Post	0	1	3	4
68.	Pre	5	1	2	2
	Post	0	2	5	3
69.	Pre	9	1	0	0
	Post	0	0	7	3
70.	Pre	10	0	0	0
	Post	9	1	0	0
71.	Pre	8	2	0	0
	Post	4	2	2	2
72.	Pre	0	0	5	5
	Post	0	0	5	5
73.	Pre	3	1	3	3
	Post	0	1	8	1
74.	Pre	5	3	1	1

	Post	5	2	2	1
75.	Pre	8	2	0	0
	Post	6	4	1	0
76.	Pre	2	4	3	1
	Post	2	4	3	1
77.	Pre	9	1	0	0
	Post	9	1	0	0
78.	Pre	9	1	0	0
	Post	0	4	3	3

APPENDIX P

SIXTH-GRADE ASSESSMENT RUBRIC FOR STUDENT WORD PROCESSING

TABULATION REPORT

Sixth-Grade Assessment Rubric for Student Word Processing Report

Pre is 180 students total Post is 175 students total

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Statement		DK	D	P	E
15.	Pre	40	98	13	29
	Post	0	28	22	125
16.	Pre	42	95	17	26
	Post	0	42	27	111
17.	Pre	45	96	16	23
	Post	0	26	27	122
18.	Pre	57	63	27	23
	Post	8	20	24	123
19.	Pre	35	55	68	22
	Post	0	11	33	131
20.	Pre	18	69	63	30
	Post	0	10	24	14
21.	Pre	75	88	11	6
	Post	5	35	45	90
22.	Pre	85	72	12	11
	Post	5	35	43	92
23.	Pre	35	48	78	19
	Post	0	24	61	90
24.	Pre	30	56	66	28
	Post	0	18	5	152
25.	Pre	65	60	43	12
	Post	0	5	87	37

Word Processing Skill Assignments by totals questions 15-24:
0 - 15 = DK, 16 - 24 = D, 25 - 31 = P, 32 and above = E
Electronic Database Skill Assignments by question 25

Statement		DK	D	P	E
Word Processing Skills	Pre	43	83	31	23
	Post	0	28	29	118
Electronic Database	Pre	65	60	43	12
Skills	Post	0	5	87	37
Presentation Software	Pre	174	6	0	0
	Post	0	74	89	12

APPENDIX Q

SIXTH-GRADE ASSESSMENT RUBRIC FOR STUDENT PRESENTATION

TABULATION REPORT

Sixth-Grade Assessment Rubric for Student Assessment of Presentation Software

Pre is 180 students total

Post is 175 students total

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Statement		DK	D	P	E
1.	Pre	174	6	0	0
	Post	0	74	89	12
2.	Pre	174	6	0	0
	Post	0	74	89	12
3.	Pre	178	2	0	0
	Post	45	80	35	15
4.	Pre	174	6	0	0
	Post	0	74	89	12
5.	Pre	174	6	0	0
	Post	0	74	89	12

APPENDIX R

SIXTH-GRADE ASSESSMENT OF STUDENT COMPUTER SKILLS

TABULATION REPORT

Sixth-Grade Assessment of Student Computer Skills

Pre is 180 students total Post is 175 students total

DK=Don't know how D=Developing proficiency P=Proficient E=Expert

Statement		DK	D	P	E
1.	Pre	23	102	18	36
	Post	2	12	49	112
2.	Pre	30	102	17	31
	Post	0	2	29	144
3.	Pre	35	97	18	30
	Post	0	5	32	138
4.	Pre	42	73	39	26
	Post	1	8	42	124
5.	Pre	12	68	63	37
	Post	0	2	18	155
6.	Pre	10	55	70	45
	Post	1	7	25	142
7.	Pre	55	103	11	11
	Post	4	11	30	130
8.	Pre	51	98	11	20
	Post	4	19	36	116
9.	Pre	24	58	73	25
	Post	2	12	40	121
10.	Pre	18	68	60	34
	Post	1	7	29	138
11.	Pre	60	59	25	36
	Post	10	28	55	82
12.	Pre	60	59	25	36
	Post	2	9	42	122
13.	Pre	114	6	0	0
	Post	0	37	126	12
14.	Pre	174	6	0	0
	Post	35	90	31	19

APPENDIX S

SIXTH-GRADE STUDENT QUESTIONAIRE TABULATION REPORT

Sixth-Grade Student Questionnaire Pre Tabulation Report: 180 students total

1. What sixth grade team are you on?

White	Turquoise
90	90

2. What is your gender?

Male	Female
90	90

3. Were you born in this country?

Yes	No
139	41

4. What is your ethnic background?

Caucasian	African American	Hispanic	Asian	European
64	48	33	13	5

Other 17

5. Do you own a computer at home?

Yes	No
128	52

6. Do you use the Internet at home?

Yes	No	Not sure
109	67	4

7. I use technology in this school.

Rarely	Occasionally	Frequently
7	56	117

8. My language arts, reading, math, science, and social studies classroom teachers assign projects and assignments with a technology part.

Rarely	Occasionally	Frequently
158	22	0

9. During technology class, I use the school technology to do assignments and projects for my classroom teachers.

Rarely	Occasionally	Frequently
119	48	13

10. My language arts, reading, math, science, and social studies classroom teachers are in the computer lab helping me during technology class.

Rarely	Occasionally	Frequently
170	10	0

11. Do any of your classroom teachers, besides your technology teacher, use technology as part of your assignments and projects?

Yes	No	Not sure
22	140	18

12. During technology class, I use the school technology to do assignments and projects for my technology teacher.

Rarely	Occasionally	Frequently
10	43	127

13. My language arts, reading, math, science, and social studies classroom teachers use a computer lab for instruction.

Rarely	Occasionally	Frequently
175	5	0

Sixth-Grade Student Questionnaire Post Tabulation Report: 175 students total

1. What sixth grade team are you on?

White	Turquoise
87	88

2. What is your gender?

Male	Female
87	88

3. Were you born in this country?

Yes	No
141	34

4. What is your ethnic background?

Caucasian	African American	Hispanic	Asian	European
63	47	32	11	5

Other 17

5. Do you own a computer at home?

Yes	No
130	45

6. Do you use the Internet at home?

Yes	No	Not sure
108	63	4

7. I use technology in this school.

Rarely	Occasionally	Frequently
6	54	115

8. My language arts, reading, math, science, and social studies classroom teachers assign projects and assignments with a technology part.

Rarely	Occasionally	Frequently
28	90	57

9. During technology class, I use the school technology to do assignments and projects for my classroom teachers.

Rarely	Occasionally	Frequently
13	68	94

10. My language arts, reading, math, science, and social studies classroom teachers are in the computer lab helping me during technology class.

Rarely	Occasionally	Frequently
20	79	76

11. Do any of your classroom teachers, besides your technology teacher, use technology as part of your assignments and projects?

Yes	No	Not sure
147	10	18

12. During technology class, I use the school technology to do assignments and projects for my technology teacher.

Rarely	Occasionally	Frequently
4	12	159

13. My language arts, reading, math, science, and social studies classroom teachers use a computer lab for instruction.

Rarely	Occasionally	Frequently
14	74	87